

Heating

Technical Data

Daikin Altherma Flex Type

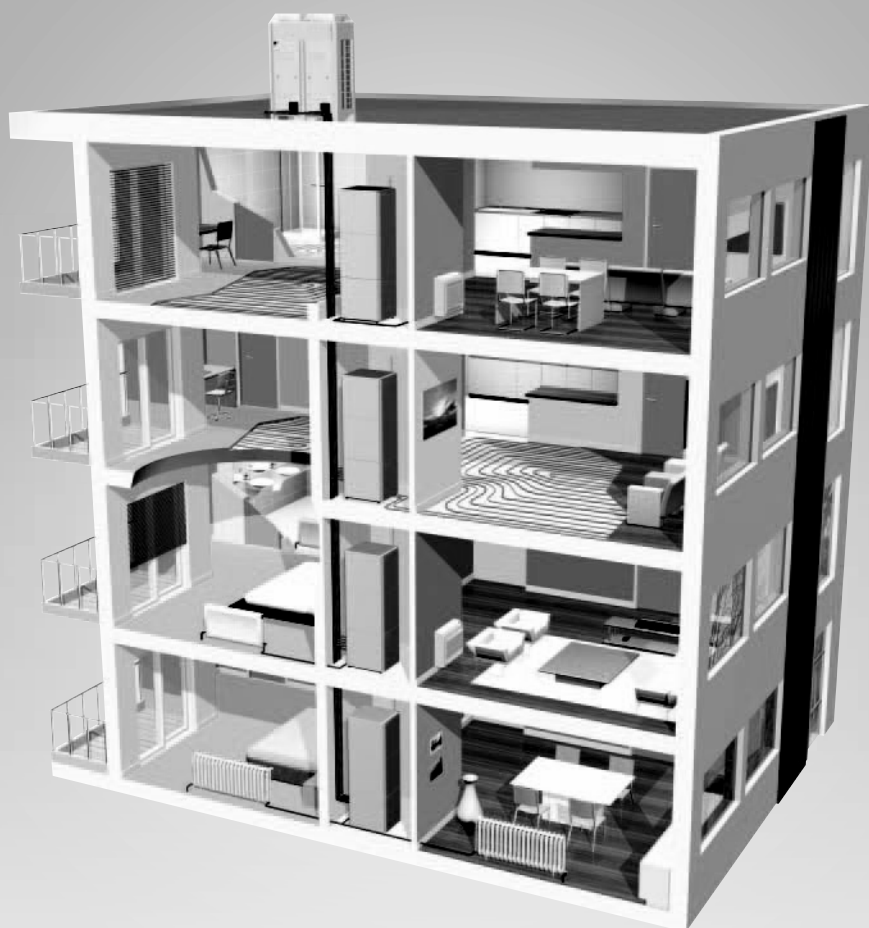


EEDEN11-727

Heating

Technical Data

Daikin Altherma Flex Type



EEDEN11-727

Daikin Altherma Flex Type

I Daikin Altherma Flex Type

Indoor unit	1	EKHVMRD-A	 3	1
	2	EKHVMYD-A	 19	2
Outdoor unit	3	EMRQ-A	 35	3
Domestic hot water tank	4	EKHTS-AC	 67	4
Heat pump convector	5	FWXV-A	 77	5

TABLE OF CONTENTS

EKHVMRD-A

1	Features	4
2	Specifications	5
	Technical Specifications	5
	Electrical Specifications	6
3	Dimensional drawings	7
	Dimensional Drawings	7
4	Piping diagrams	9
	Piping Diagrams	9
5	Wiring diagrams	10
	Wiring Diagrams - Single Phase	10
	Wiring Diagrams - Three Phase	14
6	External connection diagrams	15
	External Connection Diagrams	15
7	Sound data	16
	Sound Power Spectrum	16
	Sound Pressure Spectrum	17
8	Hydraulic performance	18
	Static Pressure Drop Unit	18

1 Features

- High temperature application: up to 80°C without electric heater
- Possible to choose between low temperature and high temperature heat emitters
- Cost effective alternative to a fossil fuel boiler
- Low energy bills and low CO2 emissions



2 Specifications

2-1 Technical Specifications					EKHVMRD50AAV1		EKHVMRD80AAV1	
Casing	Colour				Metallic grey			
	Material				Precoated sheet metal			
Dimensions	Unit	Height		mm	705			
		Width		mm	600			
		Depth		mm	695			
	Packed unit	Height		mm	860			
		Width		mm	680			
		Depth		mm	800			
Weight	Unit			kg	92			
	Packed unit			kg	103			
Packing	Material				EPS Cardboard MDF Wood (pallet) Metal			
	Weight			kg	8.75			
Pump	Type				DC motor			
	Nr of speeds				Inverter controlled			
	Nominal ESP unit	Heating		kPa	83.7		58.8	
Expansion vessel	Heating		Volume		l	7		
	Max. water pressure			bar	3			
	Pre pressure			bar	1			
Operation range	Heating	Ambient	Min.	°C	-15			
			Max.	°C	20			
		Water side	Min.	°C	25			
			Max.	°C	80			
	Domestic hot water	Ambient	Min.	°CDB	-15			
			Max.	°CDB	35			
		Water side	Min.	°C	45			
			Max.	°C	75			
Refrigerant side heat exchanger	Type				Plate heat exchanger			
	Quantity				1			
	Plates		Quantity		66			
	Material				AISI 316			
	Insulation material				Felt type			
Water side Heat exchanger	Water flow rate	Min.		l/min	5			
		Heating	Nom.	l/min	16.1		25.8	
	Heating	Type			Plate heat exchanger			
		Quantity			1			
		Plates	Quantity		72			
		Material			AISI 316			
		Water volume		l	2.2			
		Insulation material			Felt type			
	Cooling	Plates	Quantity		-			
Cascade compressor	Quantity				1			
	Motor	Type			Hermetically sealed swing compressor			
		Starting method			Direct on line			
Refrigerant	Type				R-134a			
	Charge			kg	2			
Refrigerant circuit	Gas side diameter			mm	12.7			
	Suction side diameter			mm	15.9			
	Liquid side diameter			mm	9.52			
	High pressure side	Design pressure		bar	38			
Refrigerant oil	Type				FVC50K			
	Charged volume			l	0.75			
Sound pressure level	Nom.			dBA	40 (4) 43 (5)		42 (4) 43 (5)	
	Night quiet mode	Level 1		dBA	38 (4)			
Water filter	Diameter perforations			mm	1			
	Material				Brass			

2 Specifications

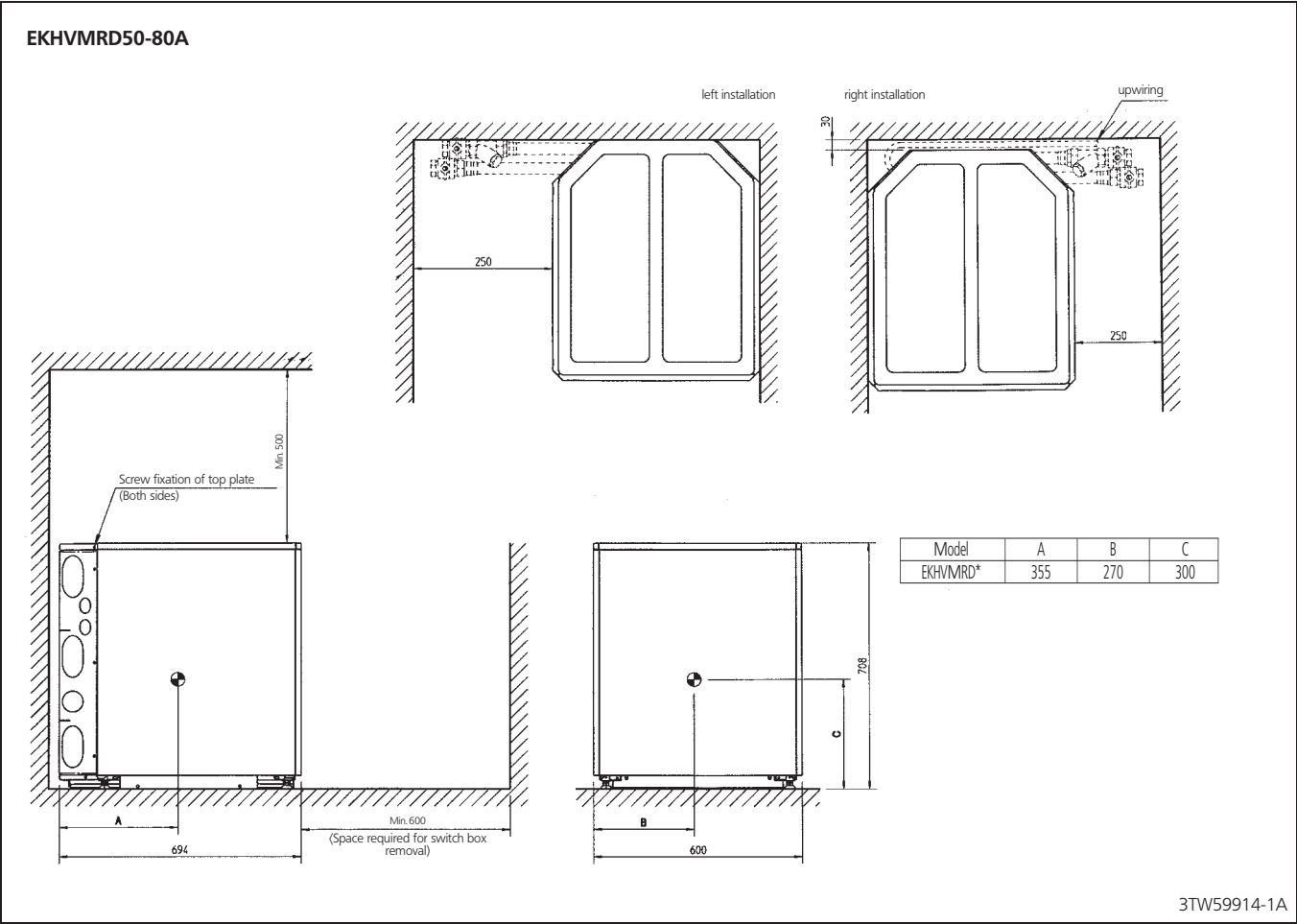
2-1 Technical Specifications					EKHVMRD50AAV1		EKHVMRD80AAV1	
Water circuit	Piping connections diameter		inch		G 1" (female)			
	Piping		inch		1"			
	Safety valve		bar		3			
	Manometer				Yes			
	Drain valve / fill valve				Yes			
	Shut off valve				Yes			
	Air purge valve				Yes			
	Heating water system	Water volume	Min.	l	20			
Max.			l	200				
Installation place					Indoor			
2-2 Electrical Specifications					EKHVMRD50AAV1		EKHVMRD80AAV1	
Power supply	Name				V1			
	Phase				1~			
	Frequency			Hz	50			
	Voltage			V	220-240			
	Voltage range	Min.		%	-10			
		Max.		%	6			
Current	Zmax	Text			0.46			
	Minimum Ssc value			kVa	1,459			
	Maximum running current	Heating		A	16.5			
	Recommended fuses			A	20			
Multi tenant	Power supply	Voltage		V	24			
		Voltage range	Min.	%	-20			
			Max.	%	20			
	Current	Maximum running current	A	1				
		Recommended fuses	A	3				
	Wiring connections	For power supply	Quantity			2G		
Type of wires			Select diameter and type according to national and local regulations					
Benefit kWh rate power supply installations		Quantity			2G+2G			
		Type of wires			Select diameter and type according to national and local regulations			
For power supply multi tenant		Quantity			2G			
		Remark			Select diameter and type according to national and local regulations			
For connection with outdoor unit		Quantity			2			
		Remark			F1 + F2			
Power supply intake					Both indoor and outdoor unit			

Notes

- (1) Maximum water flow rate for Dt: 5°C
- (2) Sound level is valid in free field condition because it is measured in a semi-anechoic room. Measured value under actual installation conditions will be higher due to environmental noise and sound reflections.
- (3) Values are sound pressure values measured at all sides (front, back, left, right, top) at 1m distance. The values do not occur simultaneously on all mentioned sides.
- (4) Sound levels are measured at: EW 55°C; LW 65°C
- (5) Sound levels are measured at: EW 70°C; LW 80°C
- (6) European/International Technical Standard setting the limits for harmonic currents produced by equipment connected to public low-voltage systems with input current $I > 16A$ and $I \leq 75A$ per phase
- (7) Zmax: In accordance with EN/IEC 61000-3-11, it may be necessary to consult the distribution network operator to ensure that the equipment is connected only to a supply with Zsys (system impedance) = Zmax
- (8) Ssc: Short-circuit power
- (9) European/International Technical Standard setting the limits for voltage changes, voltage fluctuations and flicker in public low-voltage supply systems for equipment with rated current $\leq 75A$.

3 Dimensional drawings

3 - 1 Dimensional Drawings



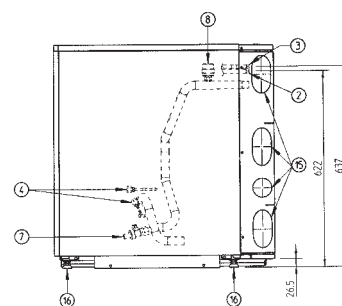
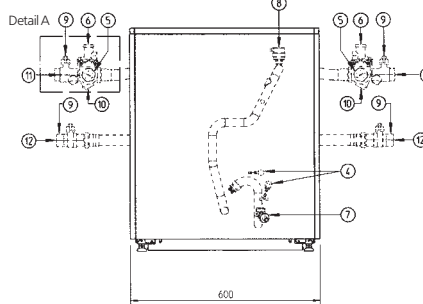
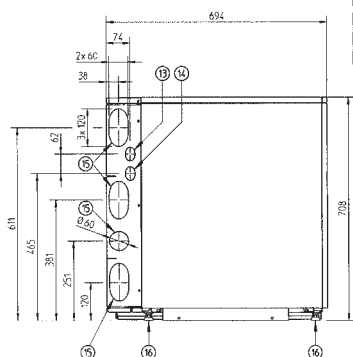
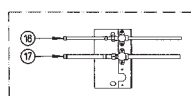
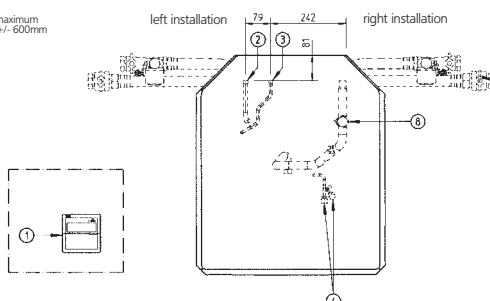
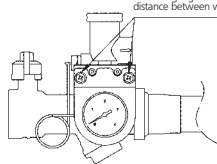
3 Dimensional drawings

3 - 1 Dimensional Drawings

EKHVMRD50-80A

Detail A
Scale 1/3

If required (e.g. Wall fixation)
Pressure gauge can be removed from waterfilter, maximum
distance between waterfilter and pressure gauge +/- 600mm



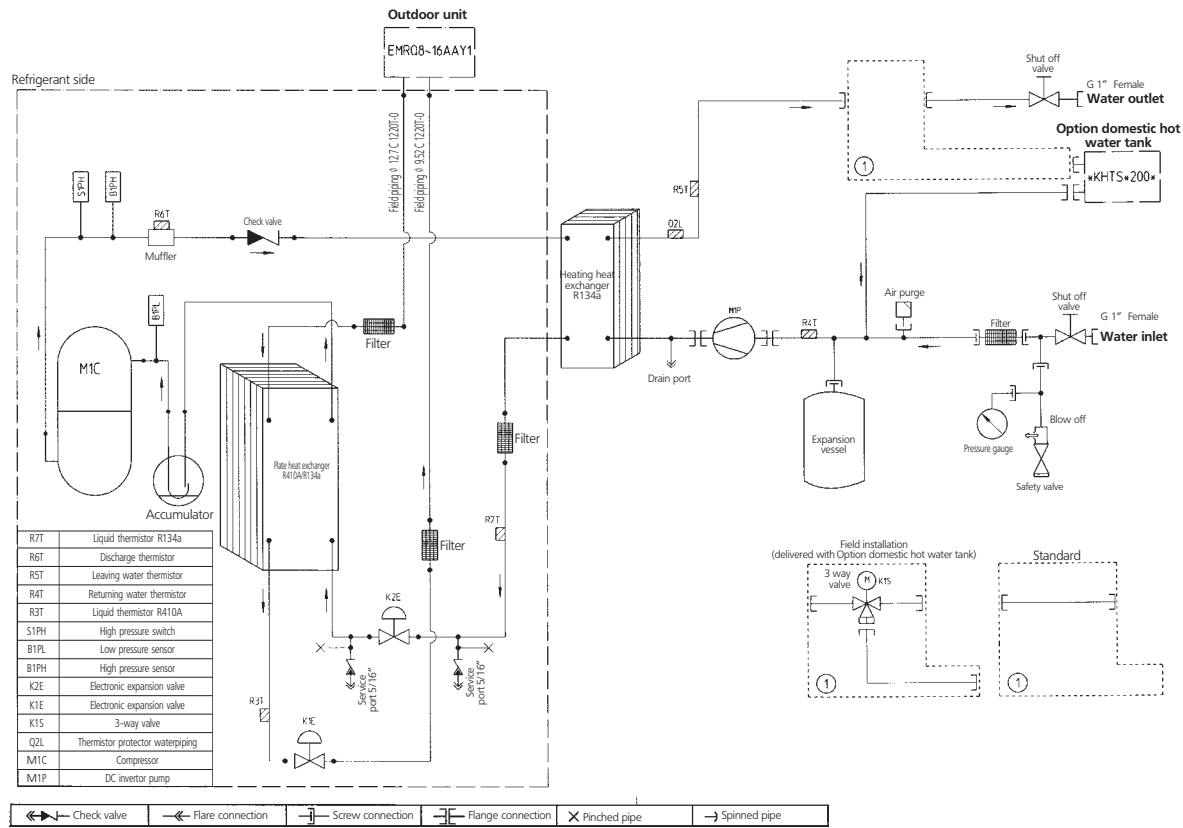
- 1 Remote controller (delivered as accessory)
Installation location is outside the unit
- 2 Discharge pipe connection ϕ 12.7 Solder (R410A)
- 3 Liquid pipe connection ϕ 9.5 Solder (R410A)
- 4 R1340 Service ports 5/16" flare (2x)
- 5 Pressure gauge
- 6 Blow off valve
- 7 Drain valve water circuit
- 8 Air purge
- 9 Shut-off valves (2x)
- 10 Water filter
- 11 Water in connection G 1" (Female)
- 12 Water out connection G 1" (Female)
- 13 Control wiring intake (Knock out hole ϕ 37)
- 14 Power supply wiring intake (Knock out hole ϕ 37)
- 15 Knock-out holes for refrigerant piping and water piping
- 16 Levelling feet
- 17 Discharge stop valve ϕ 12.7 Solder (R410A)
- 18 Liquid stop valve ϕ 9.5 Solder (R410A)

3TW59914-1A

4 Piping diagrams

4 - 1 Piping Diagrams

EKHVMRD50-80AAV1



3TW59915-1A

5 Wiring diagrams

5 - 1 Wiring Diagrams - Single Phase

NOTES TO GO THROUGH BEFORE STARTING THE UNIT

X1M : Main terminal
X2M : Field wiring terminal for high voltage
X3M : Field wiring terminal for low voltage

— — — — — : Earth wiring
- - - - - : Field supply



: Option



: Wiring depending on model



: Not mounted in switchbox



: PCB

— **/12.2 : Connection ** continues on page 12 column 2



: Several wiring possibilities

User installed:

KHTS = Domestic hot water tank
KRTW = Room thermostat (Wired)
KRTR = Room thermostat (Wireless)
KRTE = External temperature sensor for *KRTR*
KRUAHT = Remote user interface
KRP1HB = Digital I/O PCB
KRP1AHT = Demand PCB

Legend

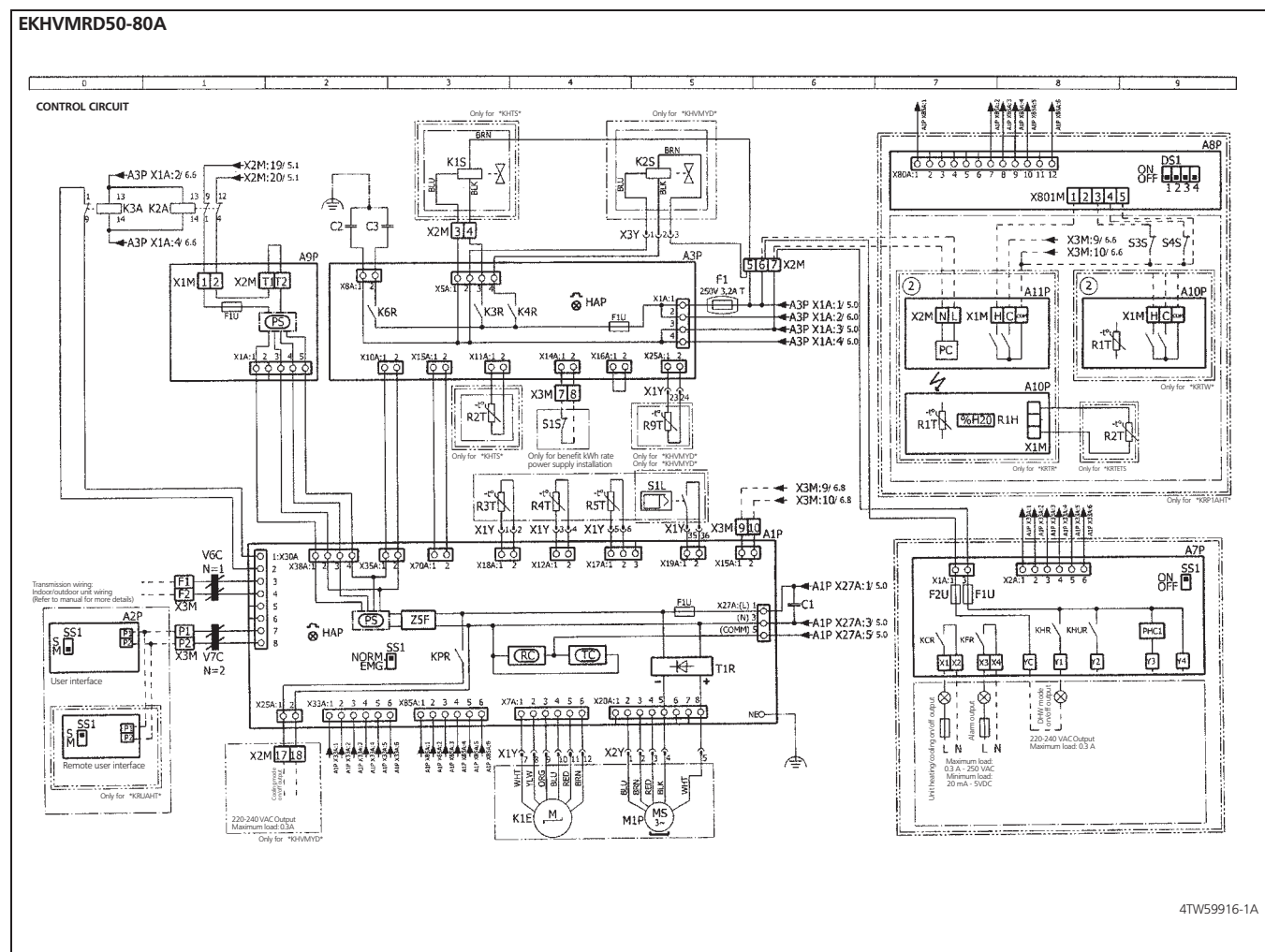
* : included in option kit
: field supplied

A1P : Main PCB
A2P : User interface PCB
A3P : control PCB
A4P : Inverter PCB
A5P : QA PCB
A6P : Filter PCB
A7P * : Digital I/O PCB
A8P * : Demand PCB
A9P : Multi tenant PCB
A10P * : Thermostat PCB
A11P * : Receiver PCB
B1PH : High pressure sensor
B1PL : Low pressure sensor
C1-C3 : Filter capacitor
C1-C3 (ASP) : PCB Capacitor
DS1 (A*P) : Dipswitch
FIU : Fuse (T, 3.2A, 250V)
FIU (A1P/A3P/A9P) : Fuse (T, 3.15A, 250V)
FIU (A6P) : Fuse (T, 6.3A, 250V)
FIU-F2U (A7P) : Fuse (5A, 250V)
F3U-F4U (A*P) : Fuse (T, 6.3A, 250V)
HAP (A*P) : PCB LED
IPMI : Integrated power module
K1A-K3A : Interface relay
K1E-K3E : Electronic expansion valve
K*R (A*P) : PCB Relay
K1S * : 3 way valve
K2S : 3 way valve
K3S : 2 way valve
K4S # : 2 way valve
M1C : Compressor
M1F : Switchbox cooling fan
M1P-M2P : DC inverter pump
PC (A11P) * : Power circuit
PHC1 : Optocoupler input circuit
PS (A*P) : Switching power supply
Q1DI-Q2DI # : Earth leakage protector
Q2L : Thermal protector water piping
R1-R2 (A4P) : Resistance
R1L : Reactor
R1H (A10P) * : Humidity sensor
R1T (A10P) * : Ambient sensor
R2T * : Domestic hot water tank Thermistor
R2T * : External sensor (floor or ambient)
R3T : Liquid thermistor R410A
R4T : Returning water thermistor
R5T : Leaving water thermistor (heating)
R6T : Discharge thermistor
R7T : Liquid thermistor R134a
R8T : Fin thermistor
R9T : Leaving water thermistor (cooling)
R10T : Liquid thermistor (cooling)
R11T : Suction thermistor (cooling)
RC (A*P) : Receiver circuit
S1PH : High pressure switch
S1S # : benefit kWh rate power supply contact
S3S # : Input multiple setpoint
S4S # : Input multiple setpoint
SS1 (A1P) : Selector switch (emergency)
SS1 (A2P) : Selector switch (master slave)
SS1 (A7P) * : Selector switch
TC (A*P) : Transmitter circuit
T1R-T2R (A*P) : Diode bridge
T3R : Power module
V1C-V8C : Ferrite core noise filter
X1M-X3M : Terminal strip
X*M (A*P) * : PCB terminal strip
X1Y-X4Y : Connector
Z1F-Z5F (A*P) : Noise filter

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5 Wiring diagrams

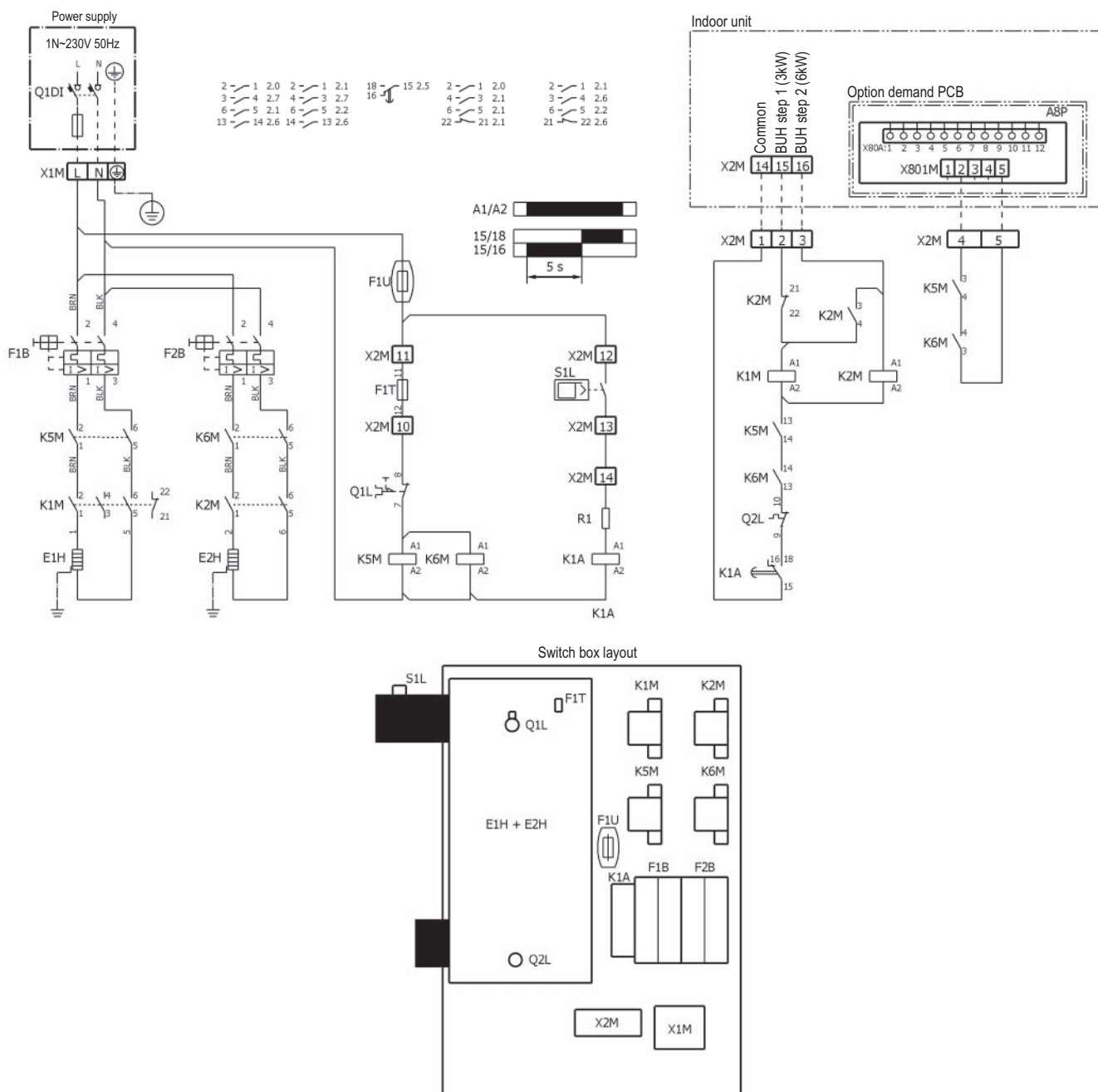
5 - 1 Wiring Diagrams - Single Phase



5 Wiring diagrams

5 - 1 Wiring Diagrams - Single Phase

EKBUH-AA6V3



Part number	Description	Part number	Description
A8P	Demand PCB (Indoor unit option)	S1L	Flowswitch
E1H, E2H	Backup heater elements	Q1DI	# Earth leakage protector
F1B, F2B	Fuse backup heater (20A 400V)	Q1L	Thermal protector backup heater (manual reset)
F1U	Fuse (5A T 250V)	Q2L	Thermal protector inlet water (automatic reset)
F1T	Thermal fuse backup heater	R1	Inline resistor for flowswitch
K1A	Time relay (on-delay)	X1M, X2M	Terminal strip
K1M, K2M	Contactor backup heater step	X801M	PCB terminal strip
K5M, K6M	Contactor for backup heater (all pole disconnection)		

#: optional # : field supplied

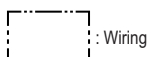
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NOTES

- X1M : Main terminal
- X2M : Field wiring terminal
- : Earth wiring
- 15 : Wire number 15
- : Field supply
- ① : Several wiring possibilities



: Option



: Wiring depending on model



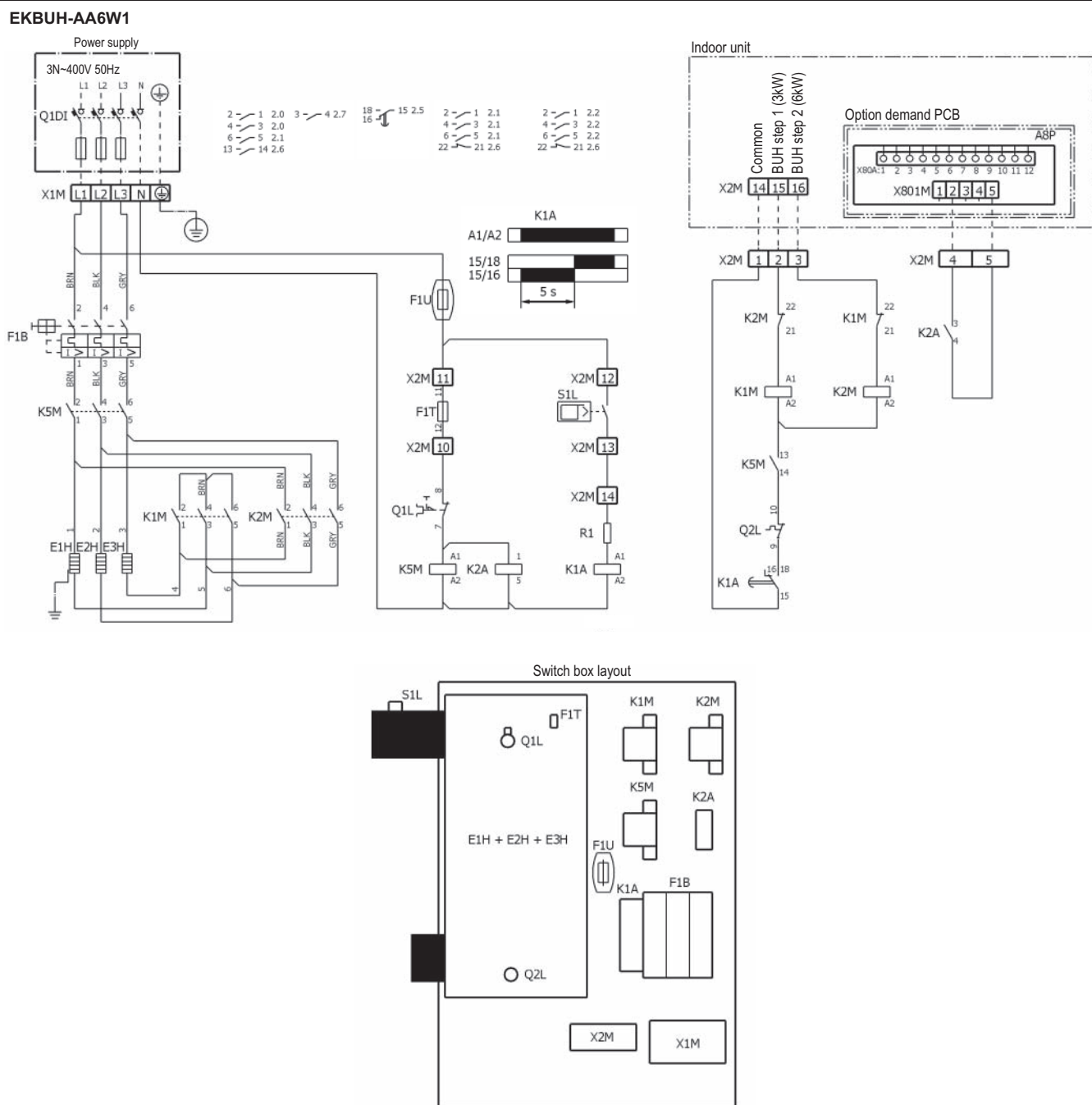
: Not mounted in switch box



: PCB

5 Wiring diagrams

5 - 2 Wiring Diagrams - Three Phase



Part number	Description	Part number	Description
A8P	Demand PCB (Indoor unit option)	K5M	Contactor for backup heater (all pole disconnection)
E1H, E2H, E3H	Backup heater elements	S1L	Flowswitch
F1B	Fuse backup heater (20A 400V)	Q1DI	# Earth leakage protector
F1U	Fuse (5A T 250V)	Q1L	Thermal protector backup heater (manual reset)
F1T	Thermal fuse backup heater	Q2L	Thermal protector inlet water (automatic reset)
K1A	Time relay (on-delay)	R1	Inline resistor for flowswitch
K2A	Auxiliary relay	X1M,X2M	Terminal strip
K1M, K2M	Contactor backup heater step	X801M	PCB terminal strip

*: optional #: field supplied

NOTES

X1M : Main terminal
X2M : Field wiring terminal
--- : Earth wiring
15 : Wire number 15
--- : Field supply
① : Several wiring possibilities

 : Option

: Wiring depending on model

 : Not mounted in switch box

☐ : PCB

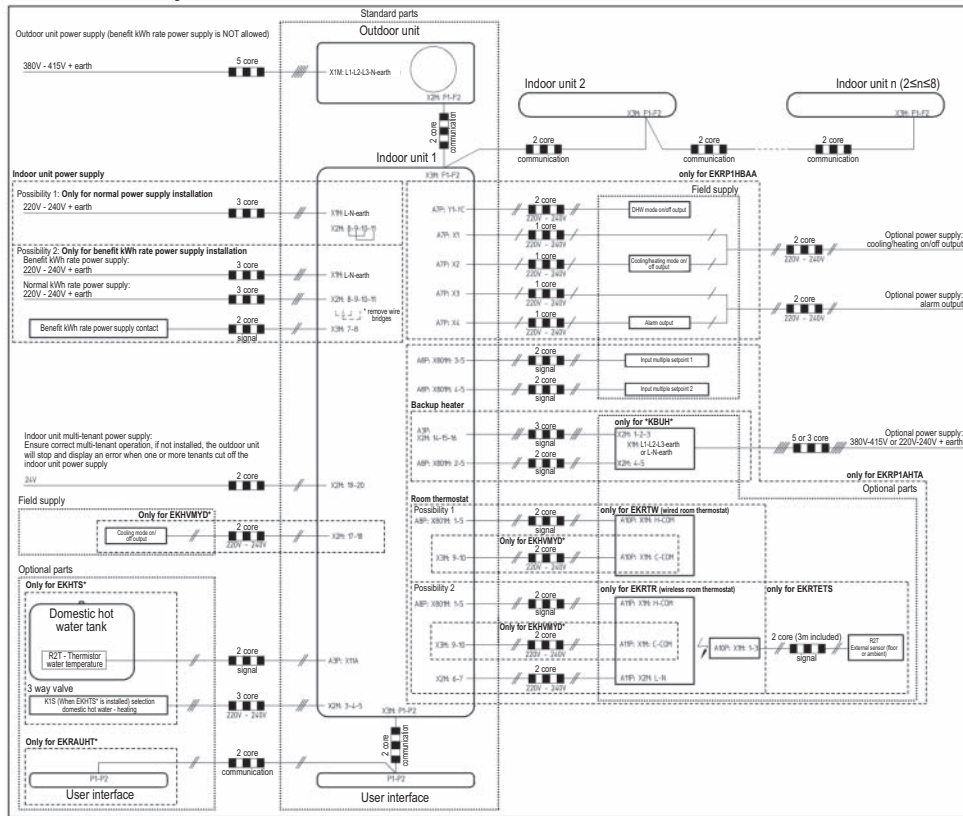
6 External connection diagrams

6 - 1 External Connection Diagrams

EKHVM(R/Y)D

Electrical connection diagram Daikin Altherma

Please check unit wiring diagram for more details



3TW59919-4A

NOTE

In case of signal cable or communication cable, keep minimum distance to power cables > 25mm

7 Sound data

7 - 1 Sound Power Spectrum

EKHVMRD50-80A

	Sound power Lw per Octave band (dB)							Total (dBA)
	125	250	500	1000	2000	4000	8000	LwA
EKHVMRD50AAV1	38	49	49	47	41	41	39	54
EKHVMRD80AAV1	39	50	51	45	45	43	41	55

Notes

- Measured according to ISO3744
- Reference acoustic pressure $0\text{dB} = 10\text{E-}6\mu\text{W/m}^2$
- dBA=A-weighted sound power level
- Unit condition: Ta=7/6°C - Heating setpoint 55/65°C - Maximum compressor frequency
- If sound is measured under actual installation conditions, the measured value will be higher due to environmental noise and sound reflections. Choose the installation location carefully and do not install in a sound sensitive environment (e.g. living room, bedroom, ...)

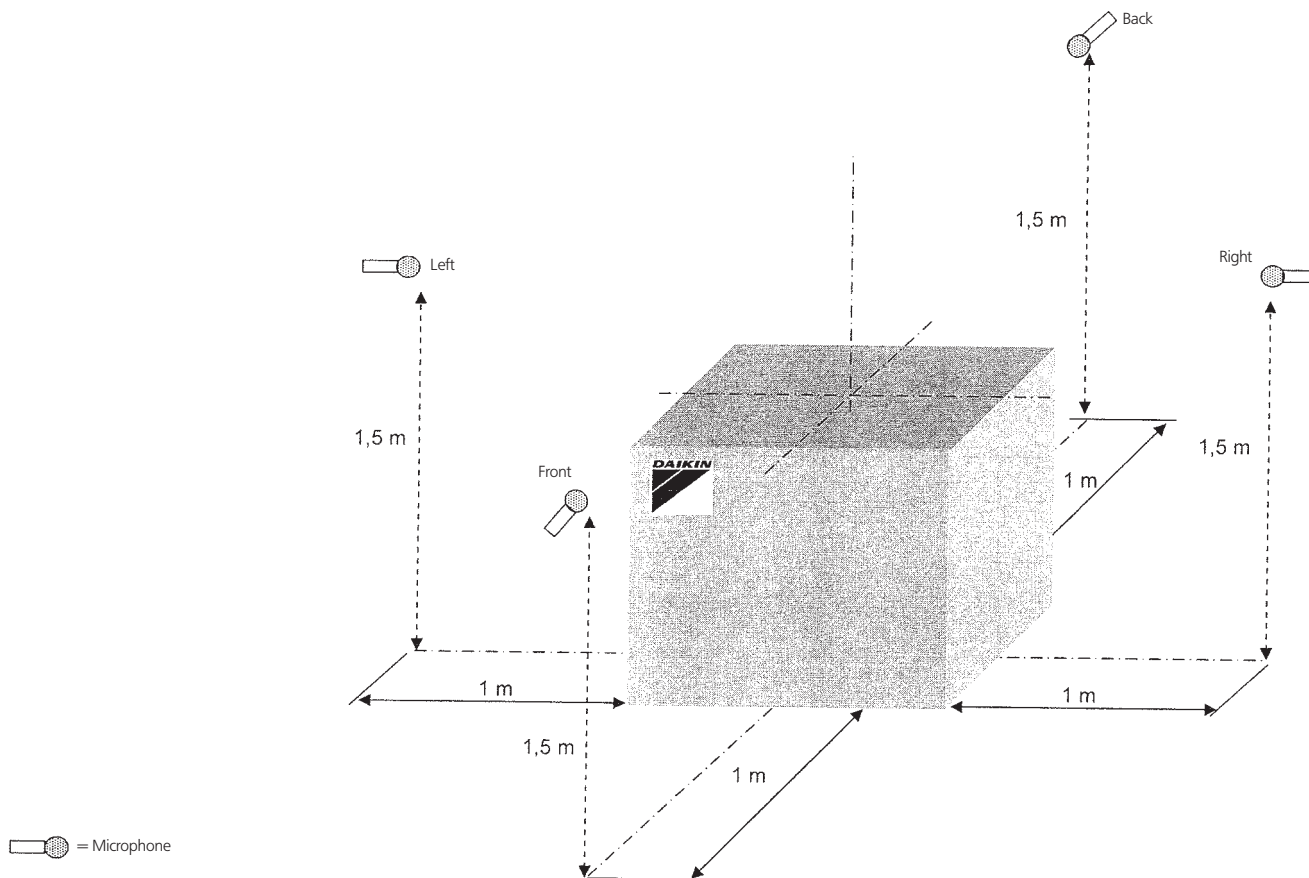
3TW59917-2

7 Sound data

7 - 2 Sound Pressure Spectrum

EKHVMRD50-80A

Position of microphones



Sound levels

Sound pressure [dBA]		
	EKHVMRD	
	50	80
[EW/LW 55/65°C]		
Front	40	42
Left / Right / Back (*)	40	41
[EW/LW 70/80°C]		
Front	40	43
Left / Right / Back (*)	40	42
[EW/LW 55/65°C] - Low sound mode n°1		
Front-Right (*)	38	38

Notes

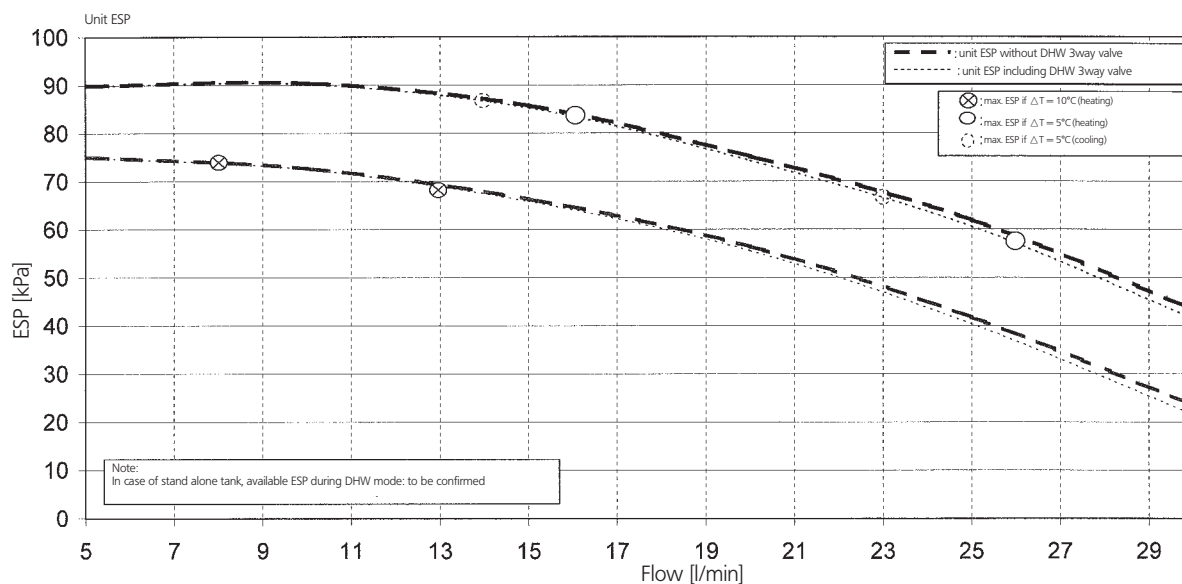
- The above data is valid in free field condition, because it is measured in a semi-anechoic room. If sound is measured under actual installation conditions, the measured value will be higher due to environmental noise and sound reflections. Choose the installation location carefully and do not install in a sound sensitive environment (e.g. living room, bedroom, ...)
- dB(A) = A-weighted sound pressure level (A-scale according to IEC)
- EW = Entering water temperature - LW = Leaving water temperature
- Reference acoustic pressure 0dB = 20µPa
- Sound pressure level of low sound mode n°2 and n°3 is lower than n°1
- (*) Does not occur simultaneously on all sides.

3TW59917-1

8 Hydraulic performance

8 - 1 Static Pressure Drop Unit

EKHVMRD50-80A



- The ESP curves are the maximum ESP curves for different DT types (pump rpm=4000 for $\Delta T=5^{\circ}\text{C}$; pump rpm=3600 for $\Delta T=10^{\circ}\text{C}$). The pump of the indoor module is inverter controlled and controls to have a fixed ΔT between return and leaving water temperature.
- In case of installing a domestic hot water tank there is an additional pressure drop over the three way valve (delivered as accessory with the tank)

ESP: External static pressure
Flow: waterflow through the unit

Warning

- Selecting a flow outside the curves can cause damage to or malfunction of the unit. See also minimum and maximum allowed water flowrange in the technical specifications.
- Water quality must be according to EN directive EC 98/83 EC.

3TW59919-5

TABLE OF CONTENTS

EKHVMYD-A

1	Features	20
2	Specifications	21
	Technical Specifications	21
	Electrical Specifications	22
3	Dimensional drawings	23
	Dimensional Drawings	23
4	Piping diagrams	25
	Piping Diagrams	25
5	Wiring diagrams	26
	Wiring Diagrams - Single Phase	26
	Wiring Diagrams - Three Phase	30
6	External connection diagrams	31
	External Connection Diagrams	31
7	Sound data	32
	Sound Power Spectrum	32
	Sound Pressure Spectrum	33
8	Hydraulic performance	34
	Static Pressure Drop Unit	34

1 Features

- High temperature application: up to 80°C without electric heater
- Possible to choose between low temperature and high temperature heat emitters
- Cost effective alternative to a fossil fuel boiler
- Low energy bills and low CO2 emissions
- Heating and cooling in one system

2

1



2 Specifications

2-1 Technical Specifications					EKHVMYD50AAV1		EKHVMYD80AAV1	
Casing	Colour				Metallic grey			
	Material				Precoated sheet metal			
Dimensions	Unit	Height	mm		705			
		Width	mm		600			
		Depth	mm		695			
	Packed unit	Height	mm		860			
		Width	mm		680			
		Depth	mm		800			
Weight	Unit			kg	120			
	Packed unit			kg	135			
Packing	Material				EPS Cardboard MDF Wood (pallet) Metal			
	Weight			kg	8.75			
Pump	Type				DC motor			
	Nr of speeds				Inverter controlled			
	Nominal ESP unit	Heating		kPa	83.7		58.8	
Expansion vessel	Heating	Volume		l	7			
	Cooling	Volume		l	2			
	Max. water pressure			bar	3			
	Pre pressure			bar	1			
Operation range	Heating	Ambient	Min.	°C	-15			
			Max.	°C	20			
		Water side	Min.	°C	25			
			Max.	°C	80			
	Cooling	Ambient	Min.	°CDB	10			
			Max.	°CDB	43			
		Water side	Min.	°C	5 (10)			
			Max.	°C	20 (10)			
	Domestic hot water	Ambient	Min.	°CDB	-15			
			Max.	°CDB	35			
		Water side	Min.	°C	45			
			Max.	°C	75			
Refrigerant side heat exchanger	Type				Plate heat exchanger			
	Quantity				1			
	Plates	Quantity			66			
	Material				AISI 316			
	Insulation material				Felt type			
Water side Heat exchanger	Water flow rate	Min.		l/min	5			
		Heating	Nom.	l/min	16.1		25.8	
		Cooling	Nom.	l/min	14.3		22.9	
	Heating	Type			Plate heat exchanger			
		Quantity			1			
		Plates	Quantity		72			
		Material			AISI 316			
		Water volume		l	2.2			
		Insulation material			Felt type			
		Cooling	Type			Plate heat exchanger		
	Quantity			1				
	Plates		Quantity		42			
	Material			AISI 316				
	Water volume		l	0.82				
	Insulation material			EPDM type				
	Cascade compressor	Quantity				1		
Motor		Type			Hermetically sealed swing compressor			
		Starting method			Direct on line			
Refrigerant	Type				R-134a			
	Charge			kg	2			

2 Specifications

2-1 Technical Specifications					EKHVMYD50AAV1		EKHVMYD80AAV1	
Refrigerant circuit	Gas side diameter			mm	12.7			
	Suction side diameter			mm	15.9			
	Liquid side diameter			mm	9.52			
	High pressure side	Design pressure		bar	38			
Refrigerant oil	Type				FVC50K			
	Charged volume			l	0.75			
Sound pressure level	Nom.			dBA	40 (4) 43 (5)		42 (4) 43 (5)	
	Night quiet mode	Level 1		dBA	38 (4)			
Water filter	Diameter perforations			mm	1			
	Material				Brass			
Water circuit	Piping connections diameter			inch	G 1" (female)			
	Piping			inch	1"			
	Safety valve			bar	3			
	Manometer				Yes			
	Drain valve / fill valve				Yes			
	Shut off valve				Yes			
	Air purge valve				Yes			
	Heating water system	Water volume	Min.	l	20			
			Max.	l	200			
Installation place					Indoor			

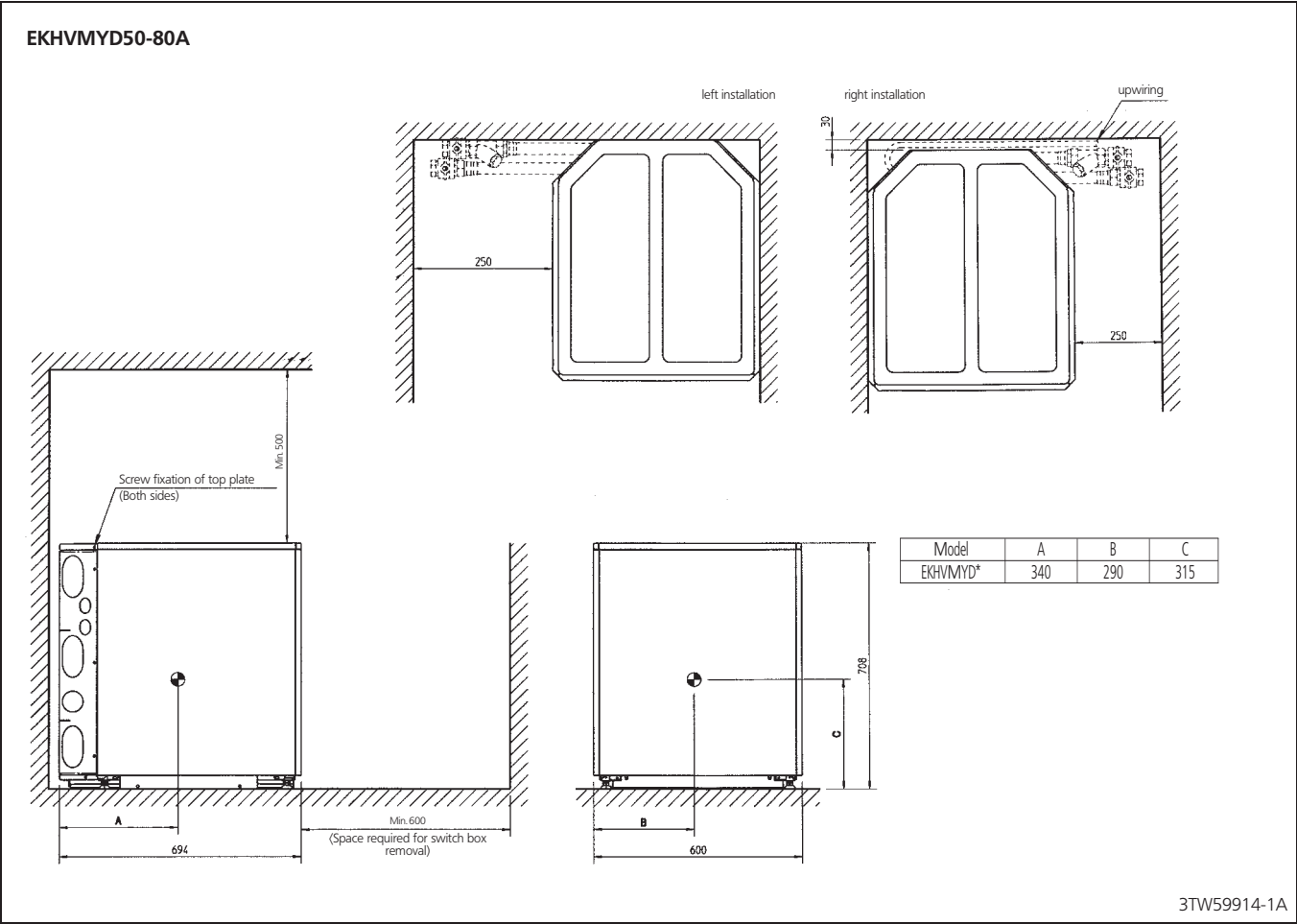
2-2 Electrical Specifications					EKHVMYD50AAV1		EKHVMYD80AAV1		
Power supply	Name				V1				
	Phase				1~				
	Frequency			Hz	50				
	Voltage			V	220-240				
	Voltage range	Min.	%	-10					
		Max.	%	6					
Current	Zmax	Text			0.46				
	Minimum Ssc value			kVa	1,459				
	Maximum running current	Heating		A	16.5				
	Recommended fuses			A	20				
Multi tenant	Power supply	Voltage		V	24				
		Voltage range	Min.	%	-20				
			Max.	%	20				
	Current	Maximum running current			A	1			
		Recommended fuses			A	3			
	Wiring connections	For power supply	Quantity			2G			
Type of wires			Select diameter and type according to national and local regulations						
Benefit kWh rate power supply installations		Quantity			2G+2G				
		Type of wires			Select diameter and type according to national and local regulations				
For power supply multi tenant		Quantity			2G				
		Remark			Select diameter and type according to national and local regulations				
For connection with outdoor unit		Quantity			2				
		Remark			F1 + F2				
Power supply intake					Both indoor and outdoor unit				

Notes

- (1) Maximum water flow rate for Dt: 5°C
- (2) Sound level is valid in free field condition because it is measured in a semi-anechoic room. Measured value under actual installation conditions will be higher due to environmental noise and sound reflections.
- (3) Values are sound pressure values measured at all sides (front, back, left, right, top) at 1m distance. The values do not occur simultaneously on all mentioned sides.
- (4) Sound levels are measured at: EW 55°C; LW 65°C
- (5) Sound levels are measured at: EW 70°C; LW 80°C
- (6) European/International Technical Standard setting the limits for harmonic currents produced by equipment connected to public low-voltage systems with input current $>16A$ and $\leq 75A$ per phase
- (7) Zmax: In accordance with EN/IEC 61000-3-11, it may be necessary to consult the distribution network operator to ensure that the equipment is connected only to a supply with Zsys (system impedance) = Zmax
- (8) Ssc: Short-circuit power
- (9) European/International Technical Standard setting the limits for voltage changes, voltage fluctuations and flicker in public low-voltage supply systems for equipment with rated current $\leq 75A$.

3 Dimensional drawings

3 - 1 Dimensional Drawings



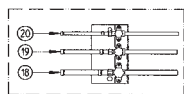
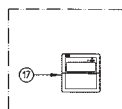
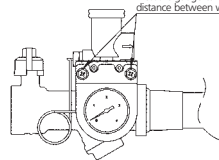
3 Dimensional drawings

3 - 1 Dimensional Drawings

EKHVMYD50-80A

Detail A
Scale 1/3

If required (e.g. Wall fixation)
Pressure gauge can be removed from waterfilter, maximum
distance between waterfilter and pressure gauge +/- 600mm



Detail A

11

12

13

14

15

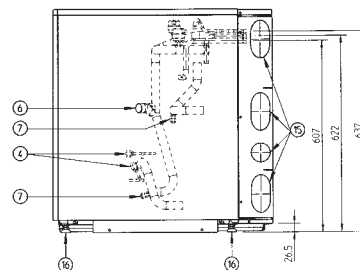
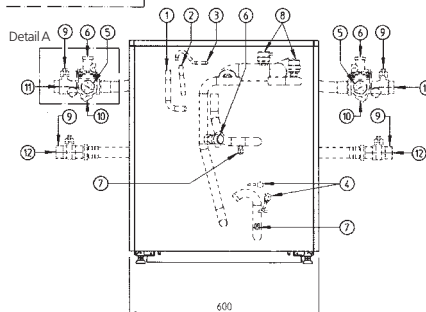
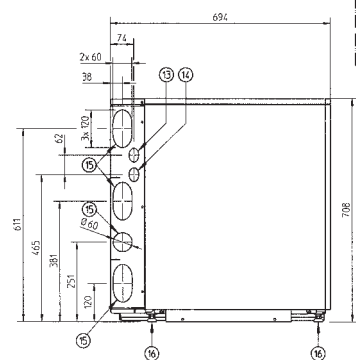
16

17

18

19

20



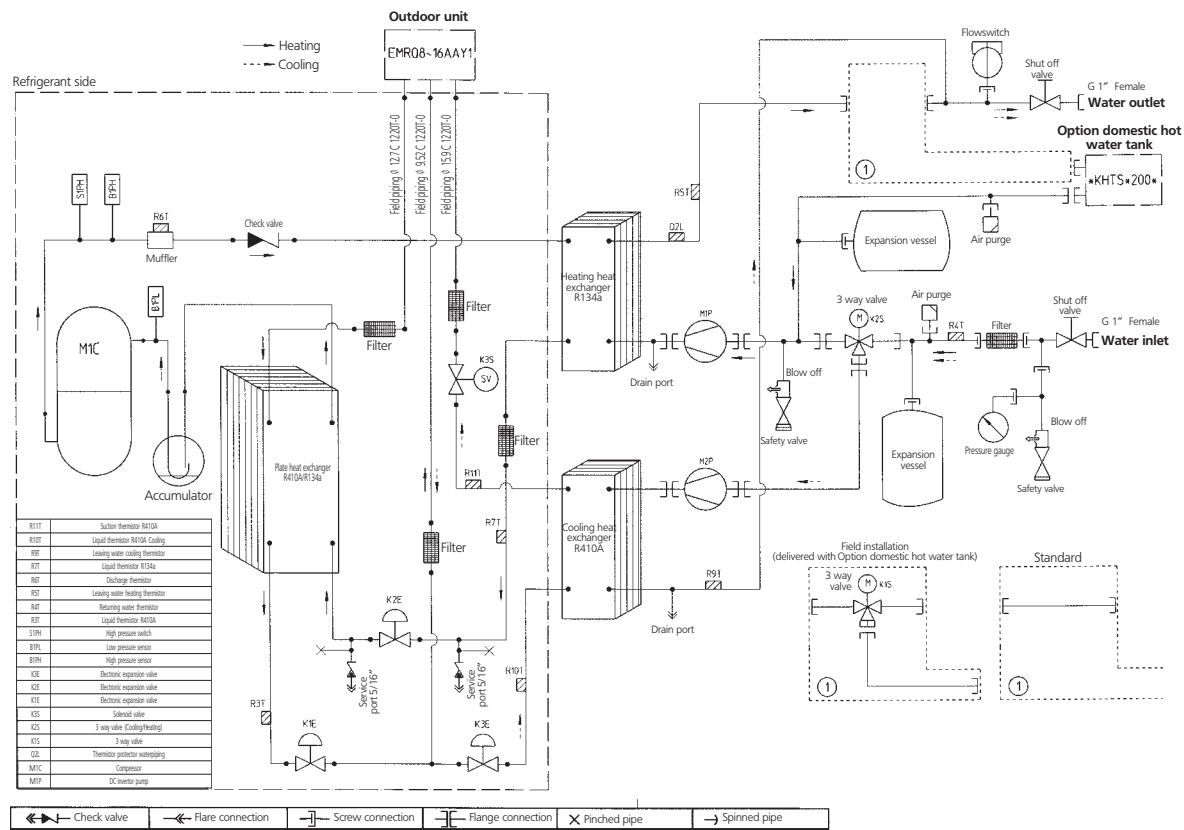
- 1 Suction/gas pipe connection ϕ 15.9 Solder (R410A)
- 2 Discharge/gas pipe connection ϕ 12.7 Solder (R410A)
- 3 Liquid pipe connection ϕ 9.5 Solder (R410A)
- 4 R1340 Service ports 5/16" flare (2x)
- 5 Pressure gauge
- 6 Blow off valve (2x)
- 7 Drain water circuit 5/16" SAE (2x)
- 8 Air purge (2x)
- 9 Shut-off valves (2x)
- 10 Water filter
- 11 Water in connection G 1" (Female)
- 12 Water out connection G 1" (Female)
- 13 Control wiring intake (Knock out hole ϕ 37)
- 14 Power supply wiring intake (Knock out hole ϕ 37)
- 15 Knock-out holes for refrigerant piping and water piping
- 16 Levelling feet
- 17 Remote controller (delivered as accessory)
Installation location is outside the unit
- 18 Suction/gas stop valve ϕ 15.9 Solder (R410A)
- 19 Discharge/gas stop valve ϕ 12.7 Solder (R410A)
- 20 Liquid stop valve ϕ 9.5 Solder (R410A)

3TW59914-1A

4 Piping diagrams

4 - 1 Piping Diagrams

EKHVMYD50-80AAV1



5 Wiring diagrams

5 - 1 Wiring Diagrams - Single Phase

NOTES TO GO THROUGH BEFORE STARTING THE UNIT

X1M : Main terminal
X2M : Field wiring terminal for high voltage
X3M : Field wiring terminal for low voltage

— — — — — : Earth wiring
- - - - - : Field supply



: Option



: Wiring depending on model



: Not mounted in switchbox



: PCB

— **/12.2 : Connection ** continues on page 12 column 2



: Several wiring possibilities

User installed:

KHTS = Domestic hot water tank
KRTW = Room thermostat (Wired)
KRTR = Room thermostat (Wireless)
KRTE = External temperature sensor for *KRTR*
KRUAHT = Remote user interface
KRP1HB = Digital I/O PCB
KRP1AHT = Demand PCB

Legend

* : included in option kit
: field supplied

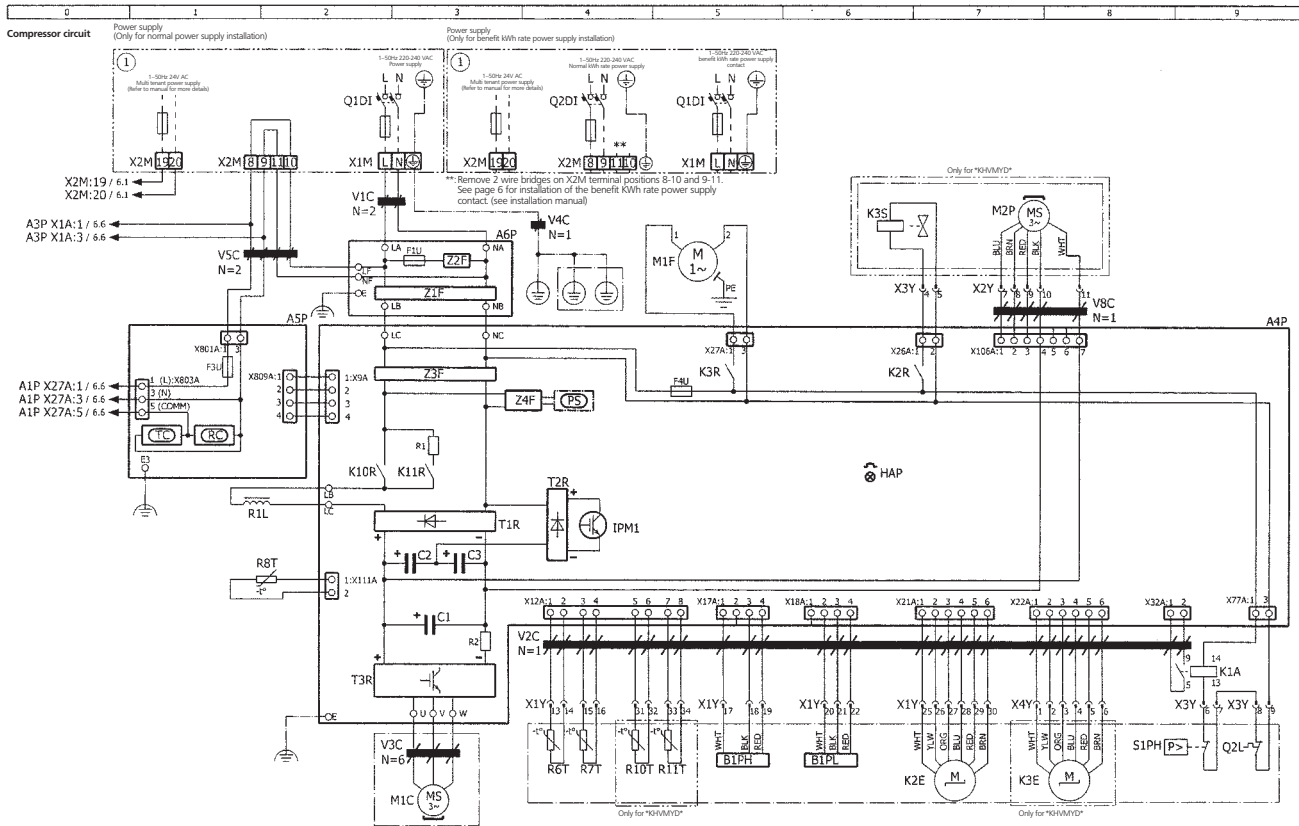
A1P : Main PCB
A2P : User interface PCB
A3P : control PCB
A4P : Inverter PCB
A5P : QA PCB
A6P : Filter PCB
A7P * : Digital I/O PCB
A8P * : Demand PCB
A9P : Multi tenant PCB
A10P * : Thermostat PCB
A11P * : Receiver PCB
B1PH : High pressure sensor
B1PL : Low pressure sensor
C1-C3 : Filter capacitor
C1-C3 (ASP) : PCB Capacitor
DS1 (A*P) : Dipswitch
F1U : Fuse (T, 3.2A, 250V)
F1U (A1P/A3P/A9P) : Fuse (T, 3.15A, 250V)
F1U (A6P) : Fuse (T, 6.3A, 250V)
F1U-F2U (A7P) : Fuse (5A, 250V)
F3U-F4U (A*P) : Fuse (T, 6.3A, 250V)
HAP (A*P) : PCB LED
IPMI : Integrated power module
K1A-K3A : Interface relay
K1E-K3E : Electronic expansion valve
K*R (A*P) : PCB Relay
K1S * : 3 way valve
K2S : 3 way valve
K3S : 2 way valve
K4S # : 2 way valve
M1C : Compressor
M1F : Switchbox cooling fan
M1P-M2P : DC inverter pump
PC (A11P) * : Power circuit
PHC1 : Optocoupler input circuit
PS (A*P) : Switching power supply
Q1DI-Q2DI # : Earth leakage protector
Q2L : Thermal protector water piping
R1-R2 (A4P) : Resistance
R1L : Reactor
R1H (A10P) * : Humidity sensor
R1T (A10P) * : Ambient sensor
R2T * : Domestic hot water tank Thermistor
R2T * : External sensor (floor or ambient)
R3T : Liquid thermistor R410A
R4T : Returning water thermistor
R5T : Leaving water thermistor (heating)
R6T : Discharge thermistor
R7T : Liquid thermistor R134a
R8T : Fin thermistor
R9T : Leaving water thermistor (cooling)
R10T : Liquid thermistor (cooling)
R11T : Suction thermistor (cooling)
RC (A*P) : Receiver circuit
S1PH : High pressure switch
S1S # : benefit kWh rate power supply contact
S3S # : Input multiple setpoint
S4S # : Input multiple setpoint
SS1 (A1P) : Selector switch (emergency)
SS1 (A2P) : Selector switch (master slave)
SS1 (A7P) * : Selector switch
TC (A*P) : Transmitter circuit
T1R-T2R (A*P) : Diode bridge
T3R : Power module
V1C-V8C : Ferrite core noise filter
X1M-X3M : Terminal strip
X*M (A*P) * : PCB terminal strip
X1Y-X4Y : Connector
Z1F-Z5F (A*P) : Noise filter

4TW59916-1A

5 Wiring diagrams

5 - 1 Wiring Diagrams - Single Phase

EKHVMYD50-80

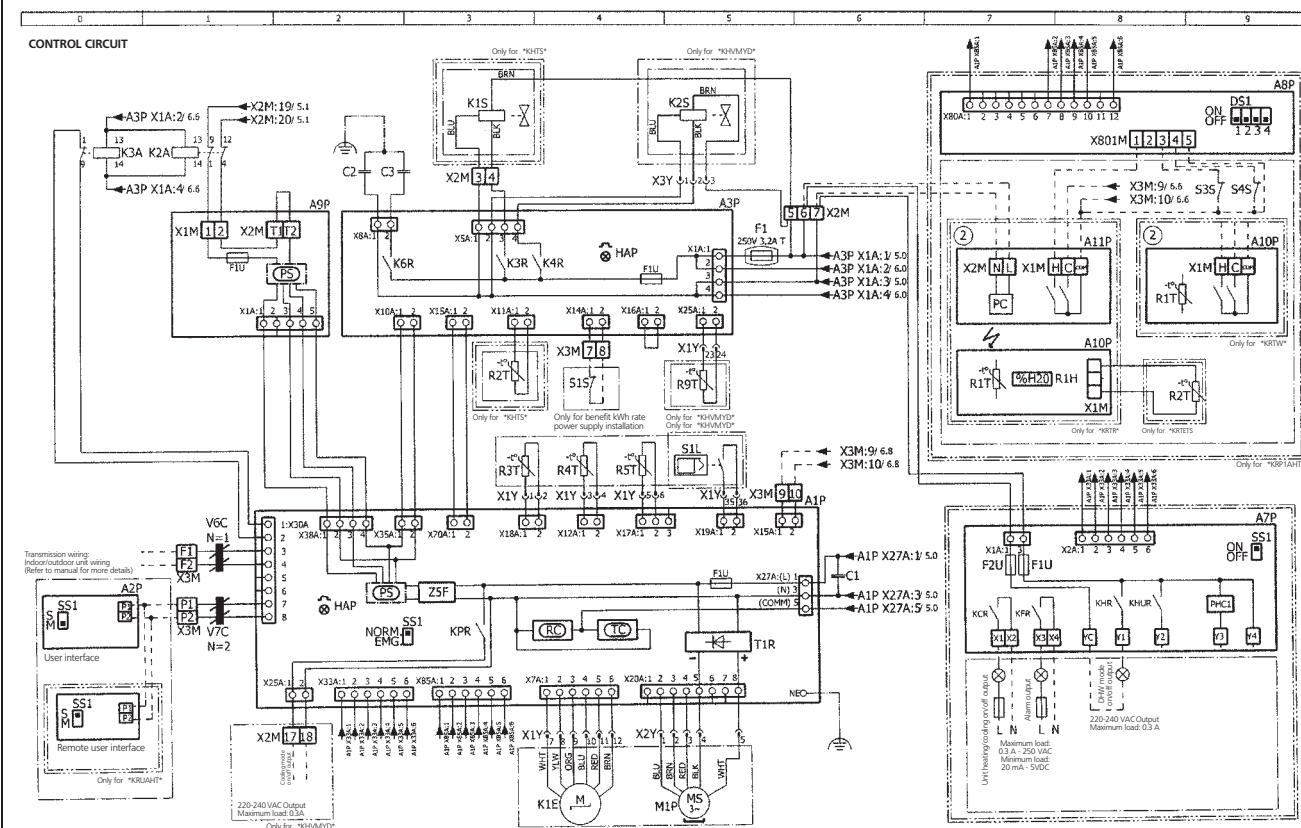


4TW59916-1A

5 Wiring diagrams

5 - 1 Wiring Diagrams - Single Phase

EKHVMYD50-80A

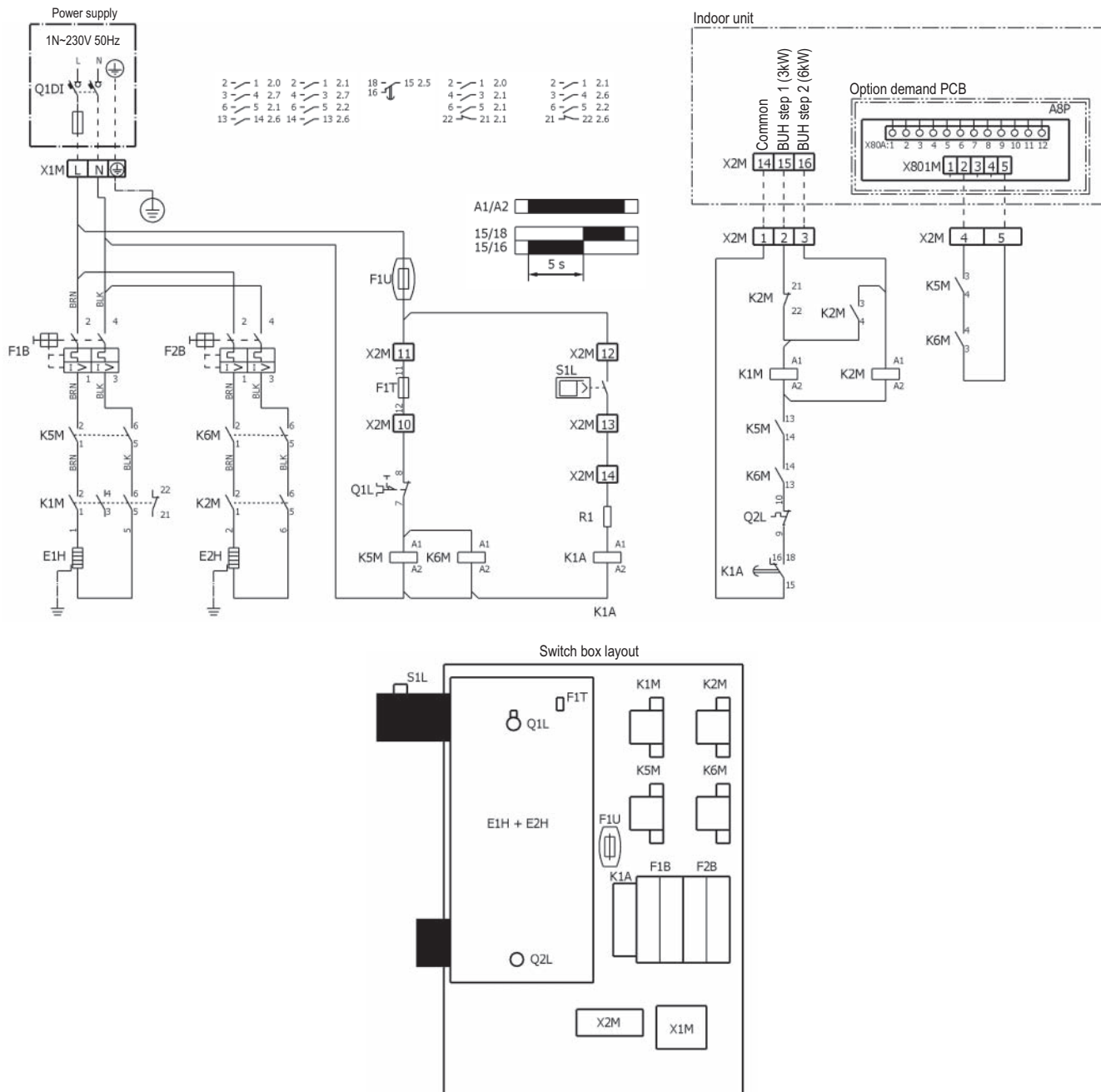


4TW59916-1A

5 Wiring diagrams

5 - 1 Wiring Diagrams - Single Phase

EKBUH-AA6V3



*: optional # : field supplied

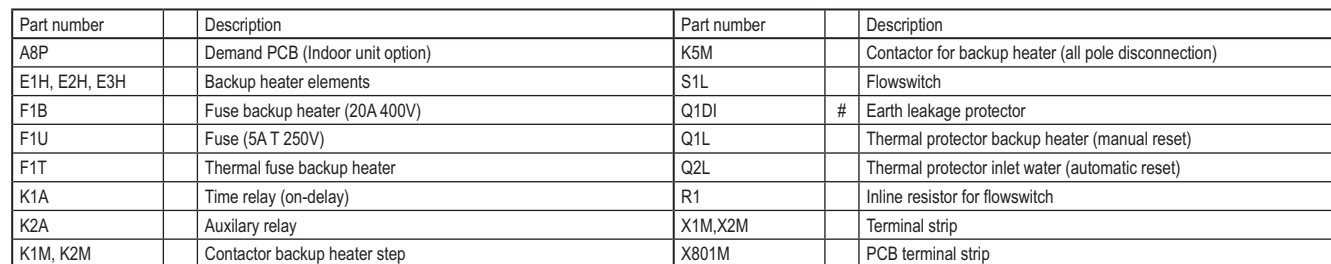
4TW59726-1

NOTES

- X1M : Main terminal
- X2M : Field wiring terminal
- : Earth wiring
- 15 : Wire number 15
- : Field supply
- ① : Several wiring possibilities



5 - 2 Wiring Diagrams - Three Phase



4TW59726-2

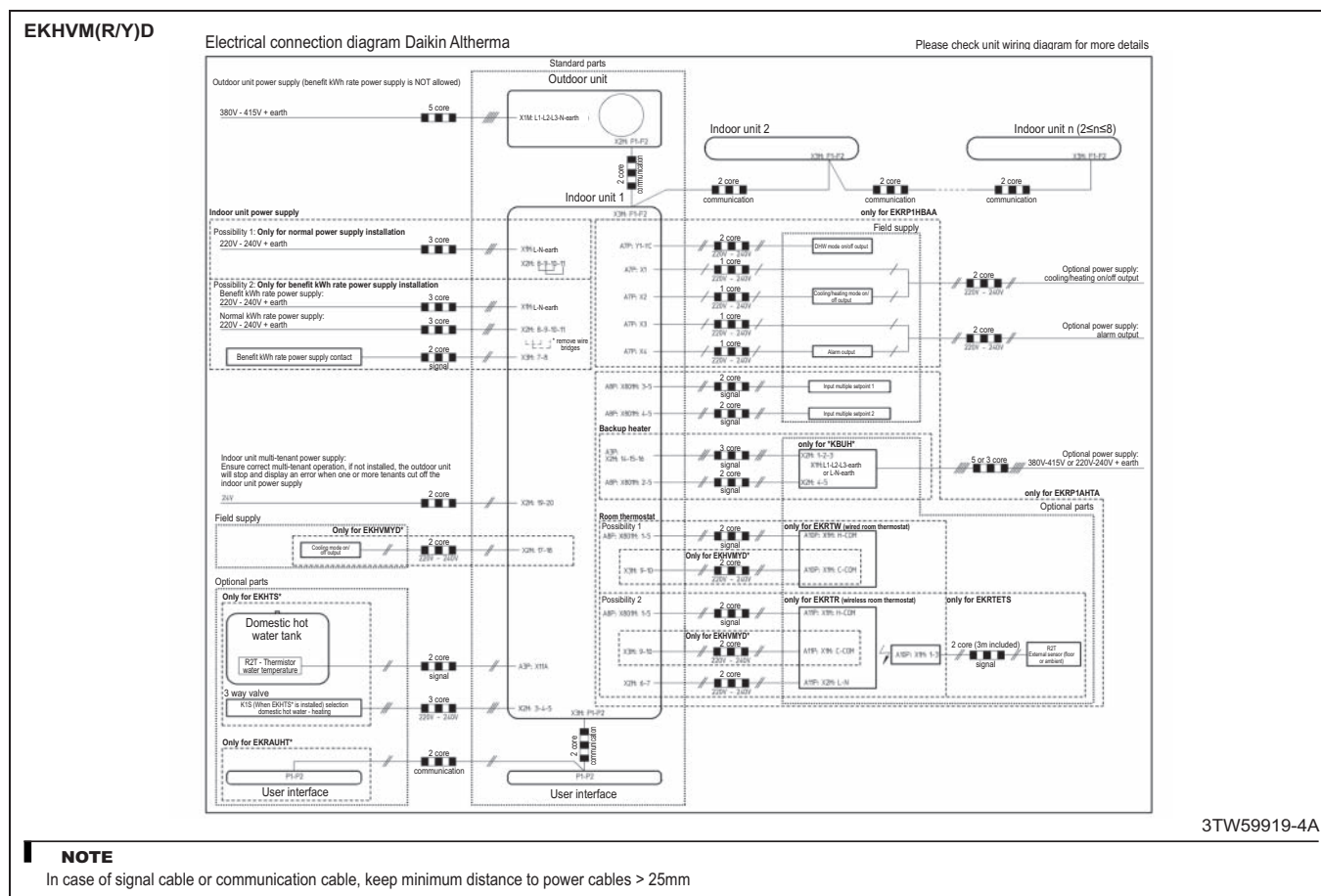
X1M : Main terminal
X2M : Field wiring terminal
--- : Earth wiring
15 : Wire number 15
--- : Field supply
① : Several wiring possibilities

: Wiring depending on model

☐ : PCB

6 External connection diagrams

6 - 1 External Connection Diagrams



7 Sound data

7 - 1 Sound Power Spectrum

EKHVMYD50-80A

	Sound power Lw per Octave band (dB)							Total (dBA)
	125	250	500	1000	2000	4000	8000	LwA
EKHVMYD50AAV1	38	49	49	47	41	41	39	54
EKHVMYD80AAV1	39	50	51	45	45	43	41	55

Notes

- Measured according to ISO3744
- Reference acoustic pressure $0\text{dB} = 10\text{E-}6\mu\text{W/m}^2$
- dBA=A-weighted sound power level
- Unit condition: Ta=7/6°C - Heating setpoint 55/65°C - Maximum compressor frequency
- If sound is measured under actual installation conditions, the measured value will be higher due to environmental noise and sound reflections. Choose the installation location carefully and do not install in a sound sensitive environment (e.g. living room, bedroom, ...)

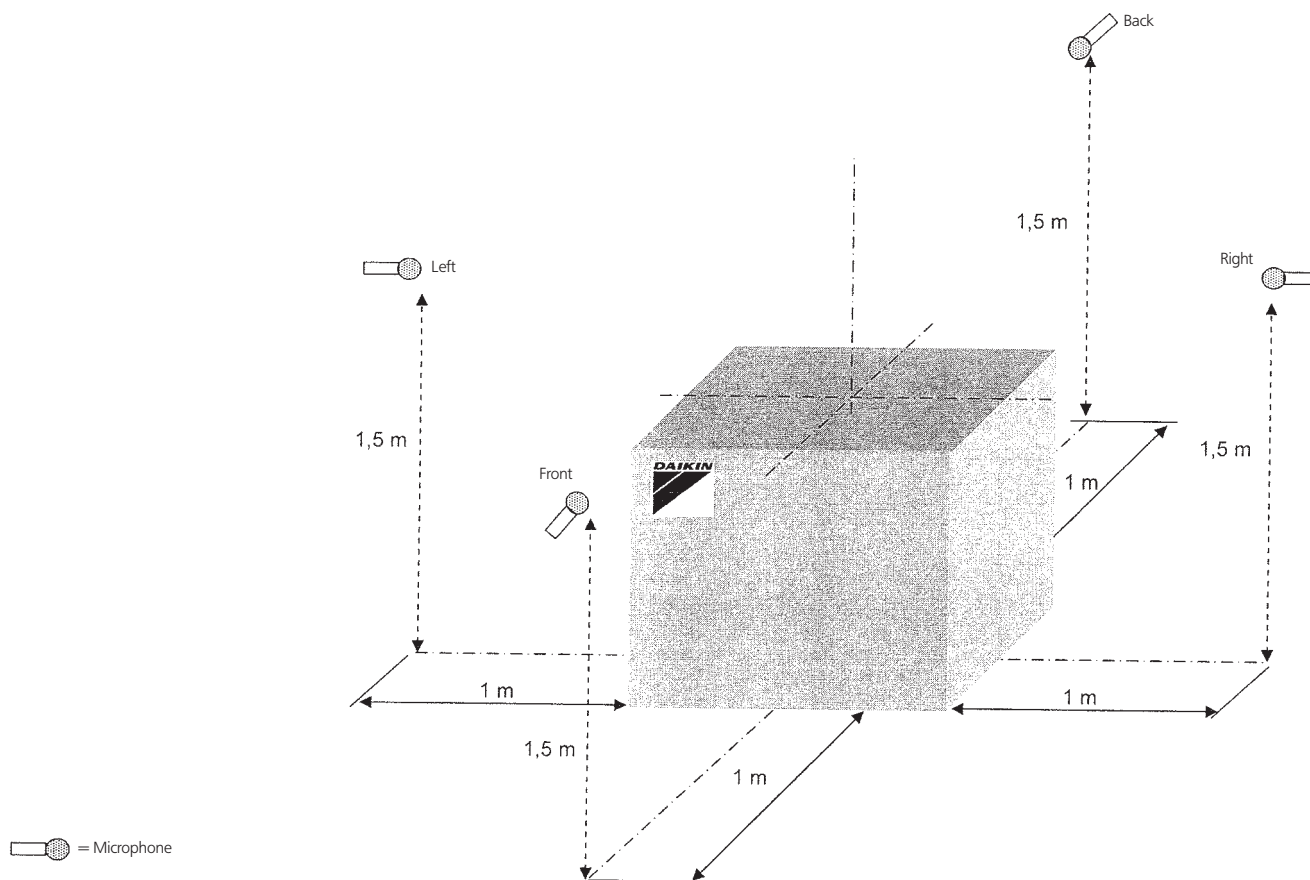
3TW59917-2

7 Sound data

7 - 2 Sound Pressure Spectrum

EKHVMYD50-80A

Position of microphones



Sound levels

Sound pressure [dBA]		
	EKHVMYD	
[EW/LW 55/65°C]	50	80
Front	40	42
Left / Right / Back (*)	40	41
[EW/LW 70/80°C]	40	43
Front	40	42
Left / Right / Back (*)	40	42
[EW/LW 55/65°C] - Low sound mode n°1	38	38
Front-Right (*)	38	38

Notes

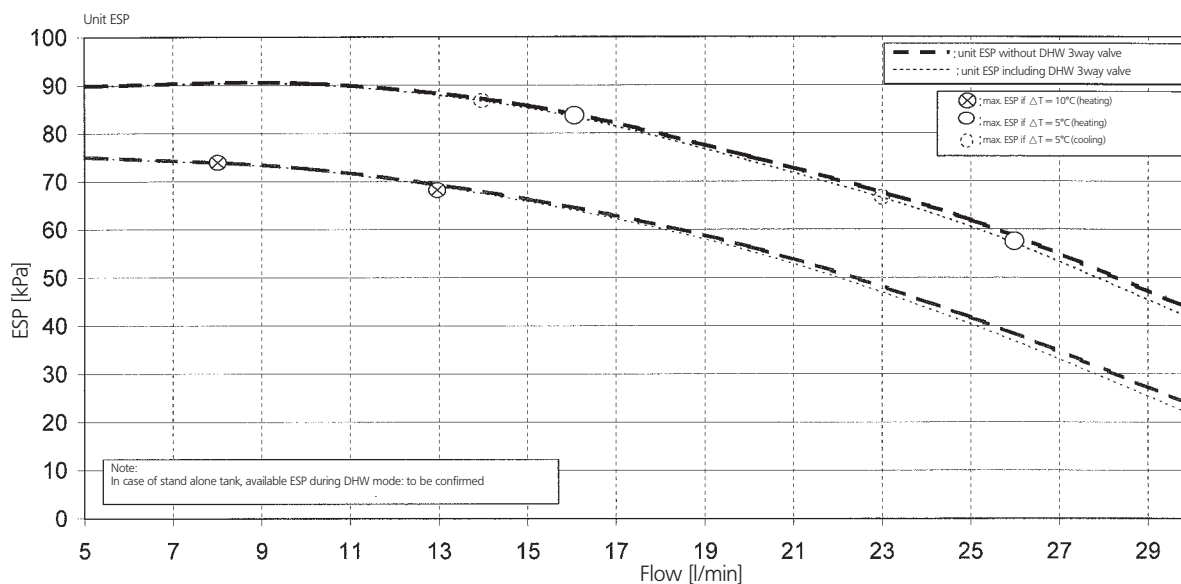
- The above data is valid in free field condition, because it is measured in a semi-anechoic room. If sound is measured under actual installation conditions, the measured value will be higher due to environmental noise and sound reflections. Choose the installation location carefully and do not install in a sound sensitive environment (e.g. living room, bedroom, ...)
- dB(A) = A-weighted sound pressure level (A-scale according to IEC)
- EW = Entering water temperature - LW = Leaving water temperature
- Reference acoustic pressure 0dB = 20µPa
- Sound pressure level of low sound mode n°2 and n°3 is lower than n°1
- (*) Does not occur simultaneously on all sides.

3TW59917-1

8 Hydraulic performance

8 - 1 Static Pressure Drop Unit

EKHVMYD50-80A



1. The ESP curves are the maximum ESP curves for different DT types (pump rpm=4000 for $\Delta T=5^{\circ}\text{C}$; pump rpm=3600 for $\Delta T=10^{\circ}\text{C}$). The pump of the indoor module is inverter controlled and controls to have a fixed ΔT between return and leaving water temperature.
2. In case of installing a domestic hot water tank there is an additional pressure drop over the three way valve (delivered as accessory with the tank)

ESP: External static pressure
Flow: waterflow through the unit

Warning

1. Selecting a flow outside the curves can cause damage to or malfunction of the unit. See also minimum and maximum allowed water flowrange in the technical specifications.
2. Water quality must be according to EN directive EC 98/83 EC.

3TW59919-5

TABLE OF CONTENTS

EMRQ-A

1	Features	36
2	Specifications	37
	Technical Specifications	37
	Electrical Specifications	38
3	Selection procedure	39
	Selection Procedure	39
4	Combination table	40
	Combination Table	40
5	Capacity tables	41
	Heating Capacity Tables	41
	Cooling Capacity Tables	44
	Capacity Correction Factor	45
6	Dimensional drawings	48
	Dimensional Drawings	48
7	Centre of gravity	49
	Centre of Gravity	49
8	Piping diagrams	50
	Piping Diagrams	50
9	Wiring diagrams	51
	Wiring Diagrams - Single Phase	51
10	Sound data	53
	Sound Power Spectrum	53
	Sound Pressure Spectrum	55
11	Installation	57
	Installation Method	57
	Refrigerant Pipe Selection	60
12	Operation range	64
	Operation Range	64

1 Features

- The ultimate flexible heating solution for apartment buildings and collective housing
- Customised to meet your building's needs: 10 indoor units to be connected to 1 outdoor unit
- Cost effective alternative to a fossil fuel boiler
- Low energy bills and low CO2 emissions
- Easy installation and maintenance



2 Specifications

2-1 Technical Specifications				EMRQ8AAY1	EMRQ10AAY1	EMRQ12AAY1	EMRQ14AAY1	EMRQ16AAY1
Heating capacity	Nom.		kW	22.4 (1)	28 (1)	33.6 (1)	39.2 (1)	44.8 (1)
Cooling capacity	Nom.		kW	20 (2)	25 (2)	30 (2)	35 (2)	40 (2)
Casing	Colour			Daikin White				
	Material			Painted galvanized steel plate				
Dimensions	Unit	Height	mm	1,680				
		Width	mm	1,300				
		Depth	mm	765				
	Packed unit	Height	mm	1,885				
		Width	mm	1,425				
		Depth	mm	860				
Weight	Unit		kg	331			339	
	Packed unit		kg	339			347	
Packing	Material			Cardboard Wood EPS	Cardboard Wood EPS	Cardboard Wood EPS	Cardboard Wood EPS	Cardboard Wood EPS
	Weight		kg	8				
Heat exchanger	Type			Cross fin coil				
Fan	Type			Propeller fan				
	Quantity			2				
	Discharge direction			Vertical				
Fan motor	Quantity			2				
	Drive			Direct drive				
	Output		W	350			750	
	Starting method			Soft start				
Compressor	Quantity			2				
	Type			Hermetically sealed scroll compressor				
	Starting method			Soft start				
	Crankcase heater	Quantity		2				
Operation range	Heating	Min.		°CWB	-15			
		Max.		°CWB	20			
	Domestic hot water	Ambient	Min.	°CDB	-15			
			Max.	°CDB	35			
	Cooling	Standard	Min.	°CDB	10			
			Max.		°CDB	43		
Refrigerant	Type			R-410A				
	Charge		kg	10.3	10.6	10.8	11.1	
	Control			Expansion valve (electronic type)				
Refrigerant oil	Type			Daphne FVC68D				

3

2

2 Specifications

2-1 Technical Specifications					EMRQ8AAY1	EMRQ10AAY1	EMRQ12AAY1	EMRQ14AAY1	EMRQ16AAY1
Piping connections	Liquid	Quantity			1				
		Type			Braze connection				
		OD	mm		9.52		12.7		
	Suction	Quantity			1				
		Type			Braze connection				
		OD	mm		19.1	22.2	28.6		
	High and low pressure gas	Quantity			1				
		Type			Braze connection				
		OD	mm		15.9	19.1		22.2	
	Piping length	Syste m	Equiv alent	m	120				
	Additional refrigerant charge			kg/m	See installation manual				
	Total piping length	Syste m	Actual	m	300				
Level difference	OU - IU	Total	m	40					
	IU - IU	Max.	m	15					
High pressure side	Design pressure		bar	40					
Sound power level	Heating	Nom.		dBA	78		80	83	84
Sound pressure level	Heating	Nom.		dBA	58		60	62	63
Defrost method					Deicer				
Safety devices	Item	01			HPS				
		02			Fan driver overload protector				
		03			Inverter overload protector				
		04			Overcurrent relay				

Standard Accessories : Installation manual; Quantity : 1;

2-2 Electrical Specifications			EMRQ8AAY1	EMRQ10AAY1	EMRQ12AAY1	EMRQ14AAY1	EMRQ16AAY1
Power supply	Phase		3~				
	Frequency	Hz	50				
	Voltage	V	380-415				
Voltage range	Min.	%	-10				
	Max.	%	6				
Current	Zmax	Text	-	0.27		-	
	Recommended fuses	A	20	25		40	
Current - 50Hz	Maximum running current	A	17.1	22.1	22.3	32.8	33
	Minimum Ssc value	kVa	889	843	850	2,045	2,035
Wiring connections	For power supply	Quantity	4G				
		Remark	Select diameter and type according to national and local regulations				
	For connection with indoor	Qty.	2G				
		Remark	F1,F2				
Power supply intake			Both indoor and outdoor unit				

Notes

(1) Condition: Ta=7°CDB/6°CWB, 100% connection ratio

(2) Condition: Ta=35°CDB, 100% connection ratio

(3) European/International Technical Standard setting the limits for harmonic currents produced by equipment connected to public low-voltage systems with input current $I_N > 16A$ and $I_N \leq 75A$ per phase

(4) In accordance with EN/IEC 61000-3-11, it may be necessary to consult the distribution network operator to ensure that the equipment is connected only to a supply with Z_{sys} (system impedance) $\leq Z_{max}$

(5) Ssc: Short-circuit power

(6) EN/IEC 61000-3-11: European/international technical standard setting the limits for voltage changes, voltage fluctuations and flicker in public low-voltage supply systems for equipment with rated $\leq 75A$

(7) Maximum installation height difference between indoor units can be increased up to 25m with special field setting

3 Selection procedure

3 - 1 Selection Procedure

EMRQ8-16A

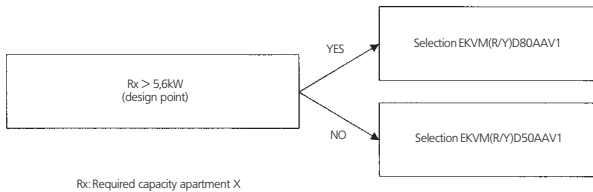
Selection procedure

Outline

- Select required indoor unit capacity, based on design point for each apartment Required capacity >5,6kW or <5,6kW
- Sum all required indoor unit capacities & capacity indices
- Select outdoor unit specifications (capacity table) so capacity matches with required capacity on design point (ambient)
- Check if capacity index total matches outdoor unit capacity index
- For full heating operation, 100% connection ration is required

Which indoor unit is required?

A. Indoor unit



B. Required capacity

$$R = \sum R$$

$$\text{Required capacity} = \sum (\text{Required capacity apartment X})$$

$$I = \text{Capacity index}$$

C. Which outdoor unit is required?

Select outdoor unit by heating capacity at design ambient temperature = R

D. Capacity index check

Outdoor unit capacity index

Connection ratio	50%	100%	130%
EMRQ8AAV1	100	200	260
EMRQ10AAV1	125	250	325
EMRQ12AAV1	150	300	390
EMRQ14AAV1	175	350	455
EMRQ16AAV1	200	400	520

E. 100% connection ratio is recommended

Example

Outdoor unit capacity index

Apartment	Rx (kW)	Type	Index%
1	7	BGHV/MR/YD80AAV1	80
2	6	BGHV/MR/YD80AAV1	80
3	5	BGHV/MR/YD50AAV1	50
4	4	BGHV/MR/YD50AAV1	50
5	4	BGHV/MR/YD50AAV1	50
6	4	BGHV/MR/YD50AAV1	50
7	4	BGHV/MR/YD50AAV1	50

R	34	= (7+6+5+4+4+4+4)
I	410	= (80+80+50+50+50+50+50)

Ta = -8°C
R = 34kW } Search capacity table - Fit EMRQ16AAV1

Outdoor unit capacity index

Connection ratio	50%	100%	130%
EMRQ8AAV1	100	200	260
EMRQ10AAV1	125	250	325
EMRQ12AAV1	150	300	390
EMRQ14AAV1	175	350	455
EMRQ16AAV1	200	400	520

EMRQ16AAV1 is preferred over EMRQ14AAV1
(close to 100% connection ratio)

3TW59919-3A

4 Combination table

4 - 1 Combination Table

EMRQ8-16A

I. Outdoor/indoor combination table

Outdoor unit	EMRQ8AA1	EMRQ10AA1	EMRQ12AA1	EMRQ14AA1	EMRQ16AA1
Heating only indoor unit					
EKHVMRD50AAV1	0	0	0	0	0
EKHVMRD80AAV1	0	0	0	0	0
Reversible indoor unit (heating & cooling)					
EKHVMYD50AAV1	0	0	0	0	0
EKHVMYD80AAV1	0	0	0	0	0

II. Kit availability

0. Kits for the system: Individual billing system calculation tool: Software available on demand. Contact your local Daikin representative.

1. Kits connected to the outdoor unit

Reference	Description	EMRQ8AA1	EMRQ10AA1	EMRQ12AA1	EMRQ14AA1	EMRQ16AA1
Combined with heating only indoor unit (EKHVMRD*)						
KHRQ(M)22M29H8	Refnet header	0	0	0	0	0
KHRQ(M)22M64H8	Refnet header	-	-	0	0	0
KHRQ(M)22M20T8	Refnet joint	0	0	0	0	0
KHRQ(M)22M29T8	Refnet joint	0	0	0	0	0
KHRQ(M)22M64T8	Refnet joint	-	-	0	0	0
Combined with reversible indoor unit (EKHVMYD*)						
KHRQ(M)22M29H8	Refnet header	0	0	0	0	0
KHRQ(M)22M64H8	Refnet header	-	-	0	0	0
KHRQ(M)22M20T8	Refnet joint	0	0	0	0	0
KHRQ(M)22M29T8	Refnet joint	0	0	0	0	0
KHRQ(M)22M64T8	Refnet joint	-	-	0	0	0
KWC25C450	Drain pan kit (1)	0	0	0	0	0

2. Kits connected to the indoor unit

Reference	Description	Indoor unit			
		EKHVMRD*		EKHVMYD*	
		50AAV1	80AAV1	50AAV1	80AAV1
EKHTS200(AB/AC)[9]	Stainless domestic hot water tank 200l	0	0	0	0
EKHTS260(AB/AC)[9]	Stainless domestic hot water tank 260l	0	0	0	0
EKHTSU200(AB/AC)	Stainless domestic hot water tank 200l UK-version	0	0	0	0
EKHTSU260(AB/AC)	Stainless domestic hot water tank 260l UK-version	0	0	0	0
EKRP1HBAA	Digital I/O PCB	0	0	0	0
EKBHAA6V3	Backup heater 1~(2)	0	0	0	0
EKBHAA6W1	Backup heater 3~(2)	0	0	0	0
EKRP1AHTA	Demand PCB (3)	0	0	0	0
EKRUAHTB	Remote user interface (remocon) (4)	0	0	0	0
EKRTWA	Wired room thermostat (2)	0	0	0	0
EKRTR1	Wireless room thermostat (2)	0	0	0	0
EKRTETS	Remote sensor for room thermostat	0	0	0	0

3. Kits connected to the domestic hot water tank

Reference	Description	DHW			
		EKHTS		EKHTSU	
		200A	260A	200AA	260AA
EKUJHHTA	Option kit for UK EKHTSU200-260A	-	-	0	0
EKFMAHTB (5)	Option kit for floor mounted tank	0	0	0	0
EKMBIL1 (6)	Option kit for billing of tank mounted on indoor unit	0	0	0	0

NOTES

1. To one outdoor unit, multiple indoor units can be connected.
2. For selection of the number of indoor units which can be connected to 1 outdoor unit; see 3TW59919-3

REMARKS

Other combinations are not guaranteed

- (1) For allowed installation, see Installation Manual
- (2) Requires demand PCB EKRP1AHTA
- (3) Required to install to be able to connect Roomthermostat or BUH kit
- (4) Same controller as supplied with Cascade unit can be mounted parallel or on other location. If 2 controllers are installed, the installer needs to select 1 master & 1 slave
- (5) Only required if tank is NOT mounted on top of the cascade indoor unit
- (6) Only required if the tank heat meter is placed between tank and hydrobox and tank is mounted on top of cascade indoor unit

3TW59919-2D

5 Capacity tables

5 - 1 Heating Capacity Tables

EMRQ8-16A

Capacity Table (100% Connection Ratio) - Nominal

	Ta	LW [°C]		LW [°C]		LW [°C]		LW [°C]	
		45		55		65		75	
	[°CDB]	HC	PI	HC	PI	HC	PI	HC	PI
EMRQ8*	-19	18,3	7,95	18,2	8,41	18,4	9,68	18,7	11,3
	-17	19,4	8,12	19,4	8,62	19,5	9,96	19,9	11,7
	-15	20,6	8,28	20,5	8,82	20,6	10,2	21,0	12,1
	-7	22,4	7,84	22,4	8,57	22,4	9,92	22,4	11,5
	-3	22,4	7,25	22,4	7,93	22,4	9,24	22,4	10,8
	1	22,4	6,77	22,4	7,43	22,4	8,75	22,4	10,3
	3	22,4	6,79	22,4	7,42	22,4	8,66	22,4	10,1
	7	22,4	6,37	22,4	6,98	22,4	8,18	22,4	9,63
	11	22,4	5,89	22,4	6,53	22,4	7,72	22,4	9,15
	15	22,4	5,46	22,4	6,08	22,4	7,29	22,4	8,67
EMRQ10*	-19	23,0	10,0	22,9	10,6	23,1	12,2	23,7	14,5
	-17	24,4	10,3	24,3	10,9	24,5	12,7	25,1	14,9
	-15	25,8	10,6	25,7	11,2	25,9	13,1	26,4	15,4
	-7	28,0	10,2	28,0	11,0	28,0	12,7	28,0	14,7
	-3	28,0	9,30	28,0	10,2	28,0	11,8	28,0	13,7
	1	28,0	8,52	28,0	9,39	28,0	11,0	28,0	12,9
	3	28,0	8,20	28,0	9,07	28,0	10,6	28,0	12,6
	7	28,0	7,64	28,0	8,49	28,0	10,1	28,0	12,0
	11	28,0	7,55	28,0	8,36	28,0	9,87	28,0	11,7
	15	28,0	7,12	28,0	7,85	28,0	9,35	28,0	11,1
EMRQ12*	-19	25,5	10,8	25,5	11,5	25,8	13,4	26,4	15,9
	-17	27,1	11,2	27,1	11,9	27,4	13,9	28,0	16,6
	-15	28,7	11,5	28,7	12,3	28,9	14,5	29,6	17,2
	-7	33,6	12,3	33,6	13,3	33,6	15,5	33,6	17,9
	-3	33,6	11,6	33,6	12,6	33,6	14,6	33,6	16,9
	1	33,6	10,7	33,6	11,7	33,6	13,6	33,6	15,9
	3	33,6	10,2	33,6	11,2	33,6	13,1	33,6	15,4
	7	33,6	9,41	33,6	10,4	33,6	12,3	33,6	14,6
	11	33,6	8,73	33,6	9,73	33,6	11,6	33,6	13,8
	15	33,6	8,16	33,6	9,14	33,6	11,0	33,6	13,2
EMRQ14*	-19	31,1	13,5	31,1	14,4	31,6	16,8	32,5	20,0
	-17	33,1	14,1	33,1	15,1	33,5	17,6	34,4	21,0
	-15	35,1	14,7	35,0	15,7	35,4	18,3	36,4	21,8
	-7	39,2	15,4	39,2	16,6	39,2	19,0	39,2	21,8
	-3	39,2	14,3	39,2	15,5	39,2	17,8	39,2	20,4
	1	39,2	13,2	39,2	14,4	39,2	16,6	39,2	19,2
	3	39,2	12,7	39,2	13,8	39,2	16,0	39,2	18,5
	7	39,2	11,9	39,2	13,0	39,2	15,1	39,2	17,6
	11	39,2	10,9	39,2	12,0	39,2	14,1	39,2	16,6
	15	39,2	10,2	39,2	11,2	39,2	13,3	39,2	15,7
EMRQ16*	-19	32,2	13,9	32,3	14,8	32,7	17,3	33,5	20,4
	-17	34,3	14,6	34,3	15,5	34,7	18,1	35,7	21,5
	-15	36,3	15,1	36,3	16,2	36,8	18,9	37,7	22,5
	-7	44,2	17,2	44,0	18,5	44,4	21,5	44,8	25,2
	-3	44,8	16,7	44,8	17,9	44,8	20,6	44,8	23,9
	1	44,8	15,7	44,8	17,0	44,8	19,6	44,8	22,5
	3	44,8	15,0	44,8	16,3	44,8	18,9	44,8	21,8
	7	44,8	14,0	44,8	15,2	44,8	17,7	44,8	20,5
	11	44,8	13,0	44,8	14,2	44,8	16,6	44,8	19,4
	15	44,8	12,0	44,8	13,2	44,8	15,6	44,8	18,4

EW = 40°C

ΔT = 5°C

EW = 45°C

ΔT = 10°C

EW = 55°C

ΔT = 10°C

EW = 65°C

ΔT = 10°C

Symbols

HC: Heating Capacity (kW)
 PI: Power Input (kW)
 LW: Leaving Water temperature
 EW: Entering Water temperature

Conditions

- ΔT: (Leaving Water temperature - Entering Water temperature)
- No pump power input is included
- Table is valid for system combination with only 2HP indoor units. Influence of 3HP unit: see page 2/3
- Equivalent piping length = 7,5m
- Ta < 0°C: RH=75%
- Ta > 0°C: RH=85%
- Grey zones are for indicative reference only. There is no guarantee for capacity. They indicate non-selection area.

5 Capacity tables

5 - 1 Heating Capacity Tables

EMRQ8-16A

Capacity Table (100% Connection Ratio) - Integrated

	Ta	LW [°C]		LW [°C]		LW [°C]		LW [°C]	
		45		55		65		75	
	[°CDB]	HC	PI	HC	PI	HC	PI	HC	PI
EMRQ8*	-19	14,9	6,58	15,0	6,96	15,2	8,09	15,9	9,65
	-17	15,8	6,70	15,9	7,11	16,1	8,29	16,8	9,91
	-15	16,7	6,87	16,7	7,32	17,0	8,56	17,7	10,3
	-7	18,6	7,31	18,8	7,99	19,0	9,28	19,3	10,8
	-3	18,8	6,92	18,9	7,57	19,1	8,85	19,5	10,5
	1	18,8	6,55	19,0	7,19	19,3	8,49	19,7	10,1
	3	19,0	6,62	19,1	7,24	19,4	8,46	19,8	9,99
	7	22,4	6,37	22,4	6,98	22,4	8,18	22,4	9,63
	11	22,4	5,89	22,4	6,53	22,4	7,72	22,4	9,15
	15	22,4	5,46	22,4	6,08	22,4	7,29	22,4	8,67
EMRQ10*	-19	18,7	8,20	18,8	8,76	19,2	10,2	20,1	12,3
	-17	19,8	8,42	19,9	9,01	20,3	10,5	21,2	12,6
	-15	20,9	8,72	21,0	9,33	21,4	10,9	22,3	13,1
	-7	23,2	9,47	23,4	10,3	23,6	11,9	24,2	13,9
	-3	23,4	8,90	23,6	9,70	23,8	11,3	24,4	13,3
	1	23,7	8,26	23,9	9,10	24,1	10,7	24,6	12,6
	3	23,9	8,01	24,1	8,85	24,2	10,4	24,7	12,4
	7	28,0	7,64	28,0	8,49	28,0	10,1	28,0	12,0
	11	28,0	7,55	28,0	8,36	28,0	9,87	28,0	11,7
	15	28,0	7,12	28,0	7,85	28,0	9,35	28,0	11,1
EMRQ12*	-19	20,7	8,8	20,9	9,5	21,4	11,2	22,4	13,5
	-17	22,0	9,2	22,2	9,8	22,7	11,6	23,7	14,0
	-15	23,3	9,5	23,4	10,2	23,9	12,1	25,0	14,6
	-7	27,8	11,4	28,1	12,4	28,4	14,5	29,0	16,9
	-3	28,1	11,1	28,3	12,1	28,6	14,0	29,2	16,4
	1	28,4	10,3	28,6	11,3	28,9	13,2	29,5	15,5
	3	28,6	10,0	28,8	11,0	29,1	12,8	29,6	15,2
	7	33,6	9,4	33,6	10,4	33,6	12,3	33,6	14,6
	11	33,6	8,7	33,6	9,73	33,6	11,6	33,6	13,8
	15	33,6	8,2	33,6	9,14	33,6	11,0	33,6	13,2
EMRQ14*	-19	25,1	11,1	24,8	11,7	26,0	14,0	26,7	16,7
	-17	26,8	11,7	26,9	12,5	27,6	14,7	28,4	17,5
	-15	28,4	12,2	28,6	13,1	29,2	15,3	29,9	18,2
	-7	30,7	13,2	31,0	14,1	31,4	16,3	31,2	18,6
	-3	31,7	13,0	31,9	14,1	32,3	16,3	32,3	18,6
	1	32,5	12,4	32,8	13,5	33,2	15,7	33,2	18,1
	3	32,9	12,2	33,1	13,2	33,5	15,3	33,5	17,7
	7	39,2	11,9	39,2	13,0	39,2	15,1	39,2	17,6
	11	39,2	10,9	39,2	12,0	39,2	14,1	39,2	16,6
	15	39,2	10,2	39,2	11,2	39,2	13,3	39,2	15,7
EMRQ16*	-19	26,0	11,5	25,7	12,1	26,8	14,4	27,5	17,0
	-17	27,7	12,0	27,9	12,9	28,6	15,1	29,4	18,0
	-15	29,4	12,5	29,6	13,4	30,2	15,8	31,0	18,8
	-7	34,6	14,7	34,6	15,7	35,4	18,4	35,9	21,6
	-3	36,2	15,2	36,5	16,4	36,9	18,9	37,1	21,9
	1	37,2	14,8	37,4	16,0	37,9	18,5	37,9	21,3
	3	37,5	14,3	37,8	15,6	38,3	18,1	38,3	20,9
	7	44,8	14,0	44,8	15,2	44,8	17,7	44,8	20,5
	11	44,8	13,0	44,8	14,2	44,8	16,6	44,8	19,4
	15	44,8	12,0	44,8	13,3	44,8	15,6	44,8	18,4

EW = 40°C

ΔT = 5°C

EW = 45°C

ΔT = 10°C

EW = 55°C

ΔT = 10°C

EW = 65°C

ΔT = 10°C

Symbols

HC: Heating Capacity (kW)
 PI: Power Input (kW)
 LW: Leaving Water temperature
 EW: Entering Water temperature

Conditions

- ΔT: (Leaving Water temperature - Entering Water temperature)
- No pump power input is included
- Table is valid for system combination with only 2HP indoor units, Influence of 3HP unit: see page 2/3
- Equivalent piping length = 7,5m
- Ta < 0°C: RH=75%
- Ta > 0°C: RH=85%
- Grey zones are for indicative reference only, There is no guarantee for capacity, They indicate non-selection area,

5 Capacity tables

5 - 1 Heating Capacity Tables

EMRQ8-16A

Heating capacity table - Indoor unit type power consumption

Indoor unit type power consumption

		EW [°C]	40	45	55	65
		LW [°C]	45	55	65	75
2HP	EKHVM*50*	PI [kW]	0,77	0,95	1,18	1,48
3HP	EKHVM*80*	PI [kW]	1,49	1,71	2,04	2,50

Example (standard condition 7/6 °CDB/°CWB)

Outdoor (HP)	12
Water condition (EW/LW)	55/65

Combination 1 (2HP → 6*2HP)

PI 1 Indoor unit (2HP) [kW]	1,18	←
PI Total indoor units [kW]	7,08	= 6*2HP
PI Outdoor unit [kW]	5,22	= 12,3 - 7,08
PI System [kW]	12,3	= Capacity table

Combination 2 (3HP → 4*3HP)

PI 1 Indoor unit (3HP) [kW]	2,04	←
PI Total indoor units [kW]	8,16	= 4*HP3
PI Outdoor unit [kW]	5,22	
PI System [kW]	13,4	

Combination 3 (2HP&3HP: → 3*2HP + 2*3HP)

PI 1 Indoor unit (2HP) [kW]	1,18	
PI 1 Indoor unit (3HP) [kW]	2,04	
PI Total indoor units [kW]	7,62	= 2*3HP + 3*2HP
PI Outdoor unit [kW]	5,22	
PI System [kW]	12,8	

Flowrate information

flowrate [l/min]	*50*	*80*
ΔT = 15°C	5,4	8,6
ΔT = 10°C	8,0	12,9
ΔT = 5°C	16,1	25,8

3TW59912-1

3

5

5 Capacity tables

5 - 2 Cooling Capacity Tables

EMRQ8-16A

Cooling capacity table (100% Connection ratio)

	EW	LW	Ta [°C]		Ta [°C]		Ta [°C]		Ta [°C]		Ta [°C]	
			20		25		30		35		40	
			CC	PI	CC	PI	CC	PI	CC	PI	CC	PI
EMRQ8*	12	7	20,0	3,72	20,0	4,25	20,0	4,88	20,0	5,72	20,0	7,50
	15	10	20,0	3,24	20,0	3,75	20,0	4,38	20,0	5,10	20,0	6,07
	18	13	20,0	2,78	20,0	3,26	20,0	3,84	20,0	4,53	20,0	5,40
	21	16	20,0	2,44	20,0	2,86	20,0	3,34	20,0	3,96	20,0	4,75
	23	18	20,0	2,23	20,0	2,64	20,0	3,11	20,0	3,68	20,0	4,37
EMRQ10*	12	7	25,0	5,11	25,0	5,74	25,0	6,60	25,0	7,76	25,0	9,37
	15	10	25,0	4,78	25,0	5,30	25,0	6,04	25,0	7,06	25,0	8,42
	18	13	25,0	3,75	25,0	4,30	25,0	5,00	25,0	6,47	25,0	7,65
	21	16	25,0	3,27	25,0	3,83	25,0	4,50	25,0	5,29	25,0	7,04
	23	18	25,0	2,93	25,0	3,48	25,0	4,13	25,0	4,91	25,0	5,81
EMRQ12*	12	7	30,0	6,31	30,0	7,20	30,0	8,40	30,0	10,1	30,0	12,3
	15	10	30,0	5,82	30,0	6,58	30,0	7,59	30,0	8,97	30,0	10,8
	18	13	30,0	5,44	30,0	6,09	30,0	6,95	30,0	8,12	30,0	9,66
	21	16	30,0	5,13	30,0	5,67	30,0	6,43	30,0	7,45	30,0	8,78
	23	18	30,0	4,06	30,0	4,66	30,0	6,15	30,0	7,08	30,0	8,28
EMRQ14*	12	7	35,0	7,08	35,0	8,28	35,0	9,76	35,0	11,6	35,0	14,2
	15	10	35,0	6,14	35,0	7,22	35,0	8,54	35,0	10,3	35,0	12,5
	18	13	35,0	5,42	35,0	6,40	35,0	7,51	35,0	8,94	35,0	10,9
	21	16	35,0	4,79	35,0	5,67	35,0	6,74	35,0	7,96	35,0	9,50
	23	18	35,0	4,48	35,0	5,27	35,0	6,26	35,0	7,45	35,0	8,87
EMRQ16*	12	7	40,0	8,80	40,0	10,3	40,0	12,2	40,0	15,5	40,0	14,6
	15	10	40,0	7,77	40,0	9,09	40,0	10,7	40,0	12,9	40,0	14,3
	18	13	40,0	6,72	40,0	7,97	40,0	9,47	40,0	11,4	40,0	13,5
	21	16	40,0	5,90	40,0	6,95	40,0	8,31	40,0	10,0	40,0	12,3
	23	18	40,0	5,46	40,0	6,43	40,0	7,60	40,0	9,10	40,0	11,2

Symbols

CC Cooling capacity [kW]
 PI Power input [kW]
 LW Leaving water temperature
 EW Entering water temperature

Conditions

- ΔT (Entering water temperature - Leaving water temperature) = 5°C
- No pump power input is included
- Equivalent piping length = 7,5m

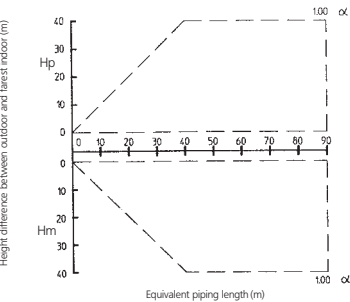
3TW59912-1

5 Capacity tables

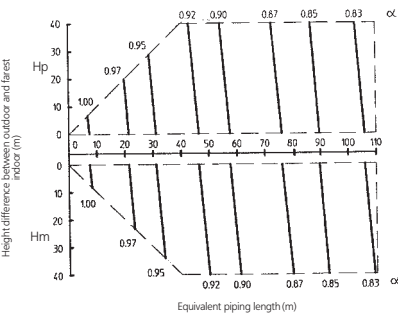
5 - 3 Capacity Correction Factor

EMRQ8A Capacity correction

1. Rate of change in heating capacity



2. Rate of change in cooling capacity



[Notes capacity correction]

- These figures illustrate the rate of change in capacity α of a standard indoor unit system at nominal load under standard conditions. Moreover, under partial load conditions there is only a minor deviation from the rate of change in capacity shown in the figures above.
- With this indoor unit, constant evaporating pressure control during cooling and constant condensing pressure control during heating is carried out
- Method of calculating capacity Connection ratio = 100%
[Capacity] = [Capacity under 100% connection ratio (Capacity table)] X [Correction factor for capacity α due to piping length to farthest indoor unit]

[Explanation of symbols]

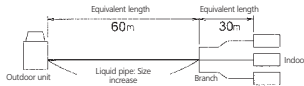
Hp: level difference (m), between indoor and outdoor unit (outdoor unit is on highest location)
Hm: level difference (m), between indoor and outdoor (outdoor unit is on lowest location)

[Notes equivalent piping length connection]

- When overall equivalent piping length is 90m or more, the diameter of the main liquid pipes must be increased
- [Overall equivalent piping length] = [Equivalent piping length to main pipe] X [Correction factor (β)] + Equivalent length after branching]

Model	Liquid standard	Liquid increase	Correction factor (β) (heating)	Correction factor (β) (cooling)
EMRQ8*	9.5 φ	12.7 φ	0.2	1

[EXAMPLE]

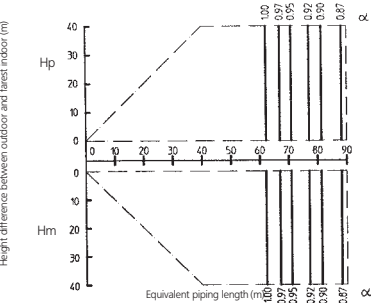


- Overall equivalent piping length = 60m x 0.2 + 30 = 42m (heating: β=0.2)
- Overall equivalent piping length = 60m x 1 + 30 = 90m (cooling: β=1)
- The correction factor for capacity when H = 0m: α=1 (heating)
- The correction factor for capacity when H = 0m: α=0.85 (cooling)

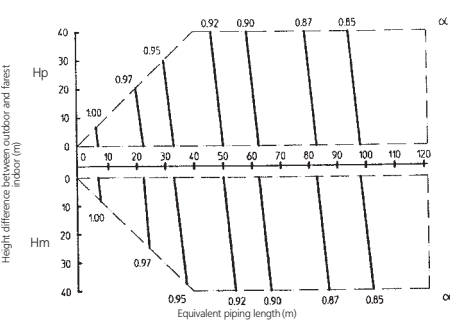
3TW59912-2

EMRQ10A Capacity correction

1. Rate of change in heating capacity



2. Rate of change in cooling capacity



[Notes capacity correction]

- These figures illustrate the rate of change in capacity α of a standard indoor unit system at nominal load under standard conditions. Moreover, under partial load conditions there is only a minor deviation from the rate of change in capacity shown in the figures above.
- With this indoor unit, constant evaporating pressure control during cooling and constant condensing pressure control during heating is carried out
- Method of calculating capacity Connection ratio = 100%
[Capacity] = [Capacity under 100% connection ratio (Capacity table)] X [Correction factor for capacity α due to piping length to farthest indoor unit]

[Explanation of symbols]

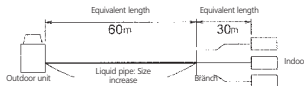
Hp: level difference (m), between indoor and outdoor unit (outdoor unit is on highest location)
Hm: level difference (m), between indoor and outdoor (outdoor unit is on lowest location)

[Notes equivalent piping length connection]

- When overall equivalent piping length is 90m or more, the diameter of the main liquid pipes must be increased
- [Overall equivalent piping length] = [Equivalent piping length to main pipe] X [Correction factor (β)] + Equivalent length after branching]

Model	Liquid standard	Liquid increase	Correction factor (β) (heating)	Correction factor (β) (cooling)
EMRQ10*	9.5 φ	12.7 φ	0.2	1

[EXAMPLE]



- Overall equivalent piping length = 60m x 0.2 + 30 = 42m (heating: β=0.2)
- Overall equivalent piping length = 60m x 1 + 30 = 90m (cooling: β=1)
- The correction factor for capacity when H = 0m: α=1 (heating)
- The correction factor for capacity when H = 0m: α=0.86 (cooling)

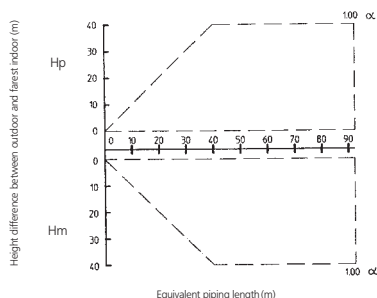
3TW59912-2

5 Capacity tables

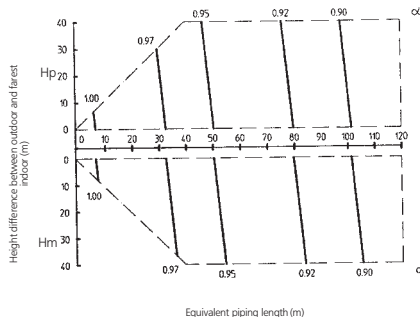
5 - 3 Capacity Correction Factor

EMRQ12A Capacity correction

1. Rate of change in heating capacity



2. Rate of change in cooling capacity



[Notes capacity correction]

- These figures illustrate the rate of change in capacity α of a standard indoor unit system at nominal load under standard conditions. Moreover, under partial load conditions there is only a minor deviation from the rate of change in capacity shown in the figures above.
- With this indoor unit, constant evaporating pressure control during cooling and constant condensing pressure control during heating is carried out
- Method of calculating capacity: Connection ratio = 100%
[Capacity] = [Capacity under 100% connection ratio (Capacity table)] X [Correction factor for capacity α due to piping length to farthest indoor unit]

[Explanation of symbols]

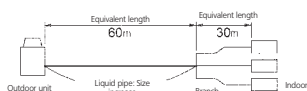
Hp: level difference (m), between indoor and outdoor unit (outdoor unit is on highest location)
Hm: level difference (m), between indoor and outdoor (outdoor unit is on lowest location)

[Notes equivalent piping length connection]

- When overall equivalent piping length is 90m or more, the diameter of the main liquid pipes must be increased
- [Overall equivalent piping length] = [Equivalent piping length to main pipe] X [Correction factor (β)] + Equivalent length after branching]

Model	Liquid standard	Liquid increase	Correction factor (β) (heating)	Correction factor (β) (cooling)
EMRQ12*	12.7 φ	15.9 φ	0.3	1

[EXAMPLE]

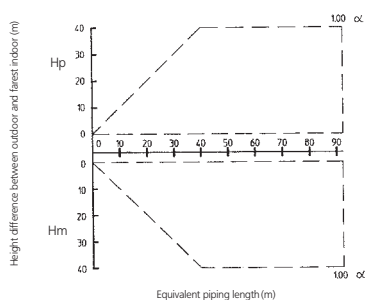


- Overall equivalent piping length = 60m x 0.3 + 30 = 42m (heating: β=0.3)
- Overall equivalent piping length = 60m x 1 + 30 = 90m (cooling: β=1)
- The correction factor for capacity when H = 0m: α=1 (heating)
- The correction factor for capacity when H = 0m: α=0.91 (cooling)

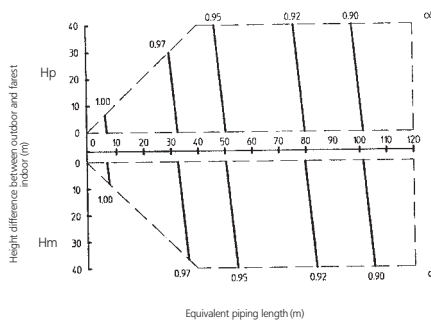
3TW59912-2

EMRQ14A Capacity correction

1. Rate of change in heating capacity



2. Rate of change in cooling capacity



[Notes capacity correction]

- These figures illustrate the rate of change in capacity α of a standard indoor unit system at nominal load under standard conditions. Moreover, under partial load conditions there is only a minor deviation from the rate of change in capacity shown in the figures above.
- With this indoor unit, constant evaporating pressure control during cooling and constant condensing pressure control during heating is carried out
- Method of calculating capacity: Connection ratio = 100%
[Capacity] = [Capacity under 100% connection ratio (Capacity table)] X [Correction factor for capacity α due to piping length to farthest indoor unit]

[Explanation of symbols]

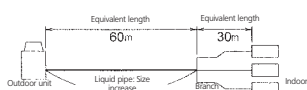
Hp: level difference (m), between indoor and outdoor unit (outdoor unit is on highest location)
Hm: level difference (m), between indoor and outdoor (outdoor unit is on lowest location)

[Notes equivalent piping length connection]

- When overall equivalent piping length is 90m or more, the diameter of the main liquid pipes must be increased
- [Overall equivalent piping length] = [Equivalent piping length to main pipe] X [Correction factor (β)] + Equivalent length after branching]

Model	Liquid standard	Liquid increase	Correction factor (β) (heating)	Correction factor (β) (cooling)
EMRQ14*	12.7 φ	15.9 φ	0.3	1

[EXAMPLE]



- Overall equivalent piping length = 60m x 0.3 + 30 = 42m (heating: β=0.3)
- Overall equivalent piping length = 60m x 1 + 30 = 90m (cooling: β=1)
- The correction factor for capacity when H = 0m: α=1 (heating)
- The correction factor for capacity when H = 0m: α=0.91 (cooling)

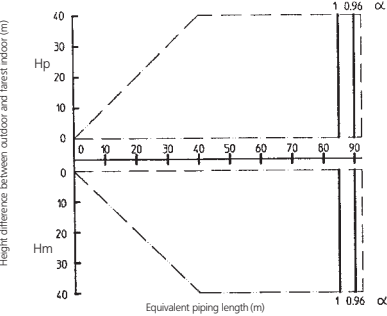
3TW59912-2

5 Capacity tables

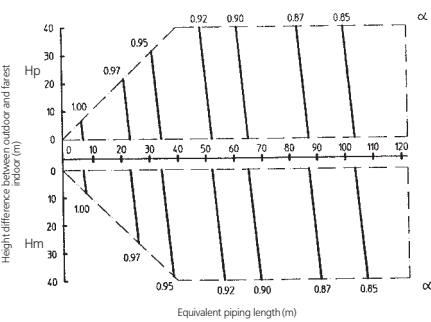
5 - 3 Capacity Correction Factor

EMRQ16A Capacity correction

1. Rate of change in heating capacity



2. Rate of change in cooling capacity



[Notes capacity correction]

- 1 These figures illustrate the rate of change in capacity α of a standard indoor unit system at nominal load under standard conditions. Moreover, under partial load conditions there is only a minor deviation from the rate of change in capacity shown in the figures above.
- 2 With this indoor unit, constant evaporating pressure control during cooling and constant condensing pressure control during heating is carried out
- 3 Method of calculating capacity Correction ratio = 100%
[Capacity] = [Capacity under 100% connection ratio (Capacity table)] X [Correction factor for capacity α due to piping length to farthest indoor unit]

[Explanation of symbols]

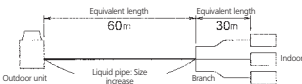
Hp: level difference (m), between indoor and outdoor unit (outdoor unit is on highest location)
Hm: level difference (m), between indoor and outdoor (outdoor unit is on lowest location)

[Notes equivalent piping length connection]

- 1 When overall equivalent piping length is 90m or more, the diameter of the main liquid pipes must be increased
- 2 [Overall equivalent piping length] = [Equivalent piping length to main pipe] X [Correction factor (β)] + Equivalent length after branching]

Model	Liquid standard	Liquid increase	Correction factor (β) (heating)	Correction factor (β) (cooling)
EMRQ16*	12.7 φ	15.9 φ	0.3	1

[EXAMPLE]



- A. Overall equivalent piping length = 60m x 0.3 + 30 = 48m (heating: β=0.3)
- B. Overall equivalent piping length = 60m x 1 + 30 = 90m (cooling: β=1)
- C. The correction factor for capacity when H = 0m: α=1 (heating)
- D. The correction factor for capacity when H = 0m: α=0.87 (cooling)

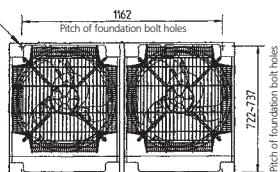
3TW59912-2

6 Dimensional drawings

6 - 1 Dimensional Drawings

EMRQ8-16A

4x 15x22.5mm Oblong holes
(Foundation bolt holes)



Notes

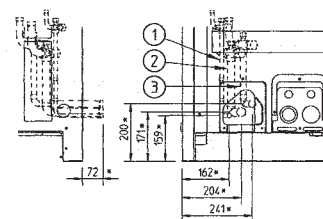
- For piping connection method (front and bottom sides) see the installation manual.
- Piping connections for field connection

Discharge gas pipe
 φ 15.9 Brazing connection: EMRQ8AAY1
 φ 19.1 Brazing connection: EMRQ10,12AAY1
 φ 22.2 Brazing connection: EMRQ14,16AAY1

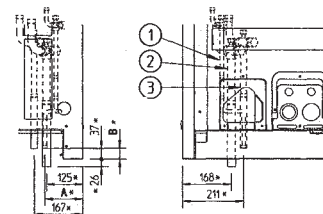
Suction gas pipe
 φ 19.1 Brazing connection: EMRQ8AAY1
 φ 22.2 Brazing connection: EMRQ10,12AAY1
 φ 28.6 Brazing connection: EMRQ14,16AAY1

Liquid pipe
 φ 9.5 Brazing connection: EMRQ8,10AAY1
 φ 12.7 Brazing connection: EMRQ12,14,16AAY1

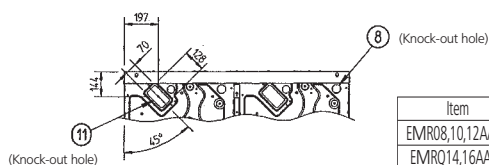
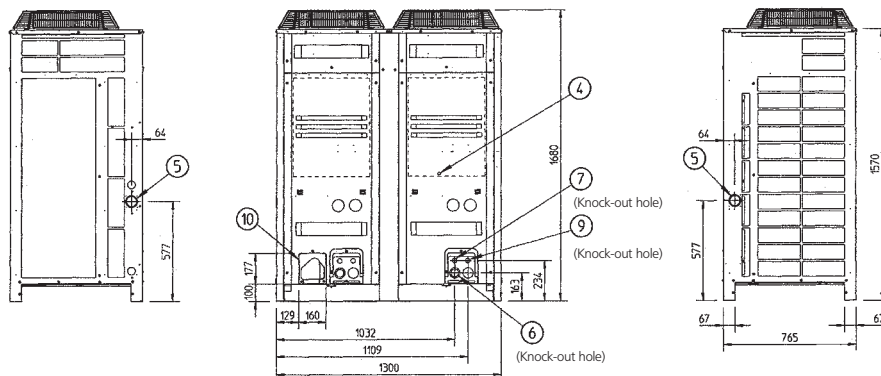
- * Shows the dimensions after fixing the accessory bag



Detail for front side



Detail for bottom side



Item	A	B
EMRQ8,10,12AAY1	129	32
EMRQ14,16AAY1	131	38

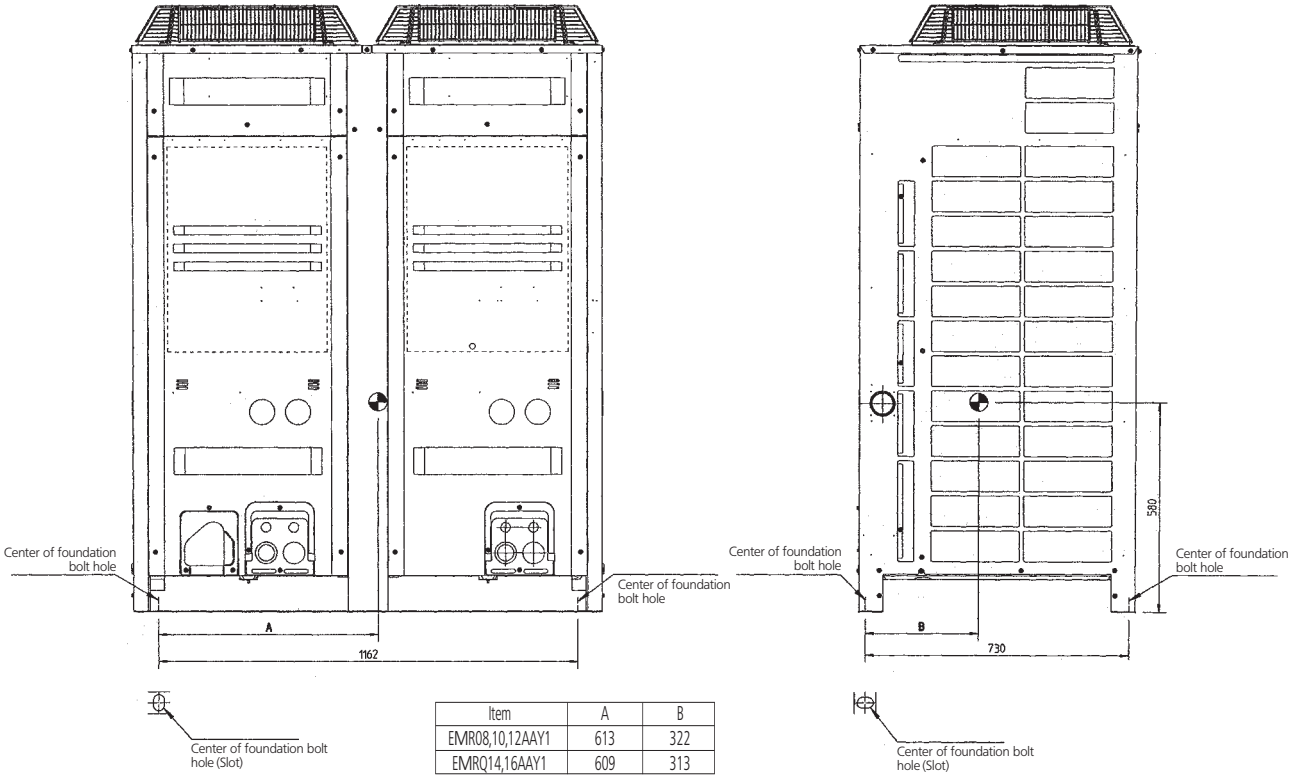
No	Parts name	Remarks
1	Liquid pipe connection port	See note 2
2	Suction gas pipe connection port	See note 2
3	Discharge gas pipe connection port	See note 2
4	Grounding terminal	Inside of switchbox (M8)
5	Power cord routing hole (side)	φ 62mm
6	Power cord routing hole (front)	φ 45mm
7	Power cord routing hole (front)	φ 27mm
8	Power cord routing hole (bottom)	φ 50mm
9	Wire routing hole (front)	φ 27mm
10	Pipe routing hole (front)	See note 1
11	Pipe routing hole (bottom)	See note 1

3TW59924-1

7 Centre of gravity

7 - 1 Centre of Gravity

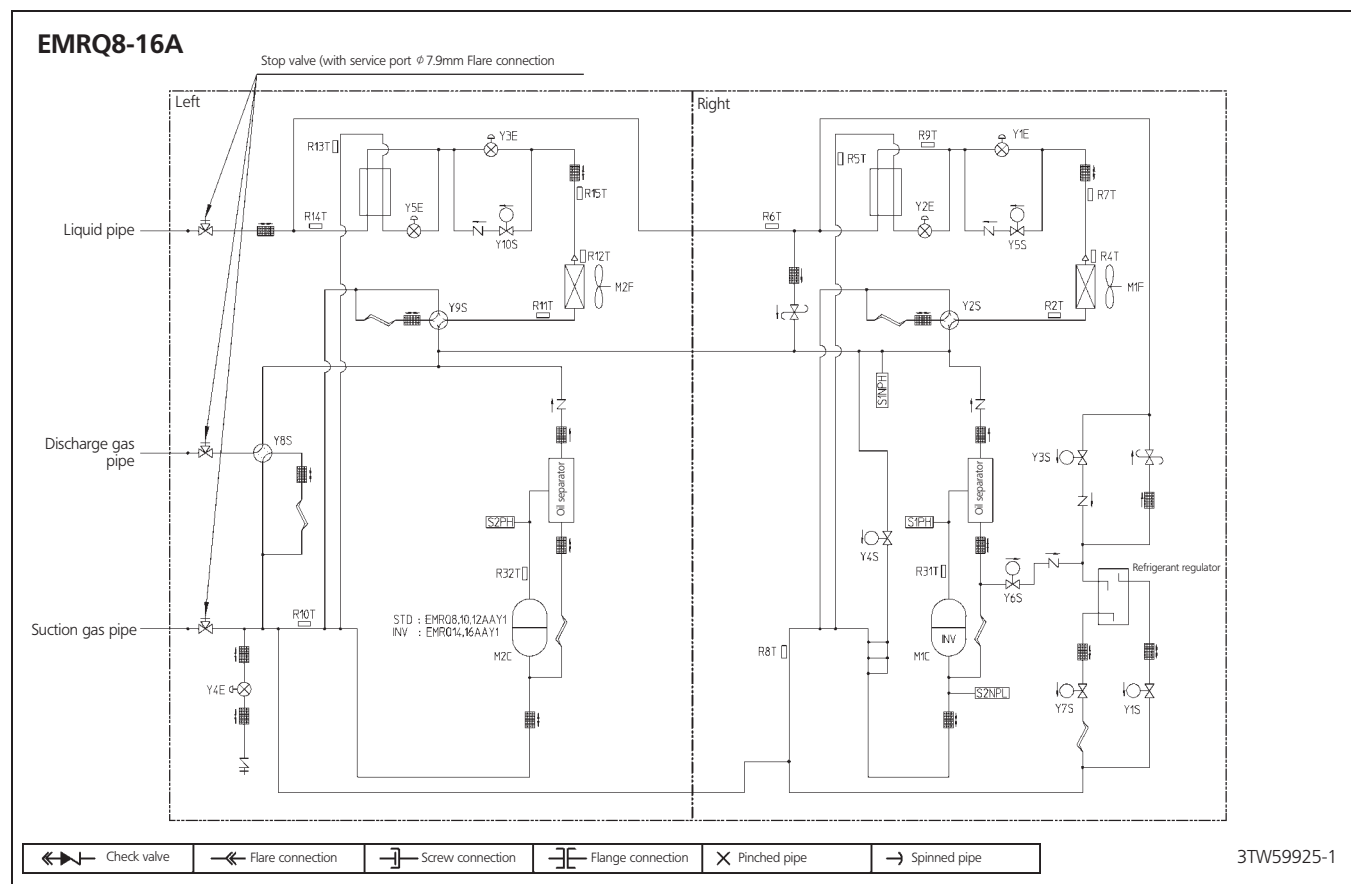
EMRQ8-16A



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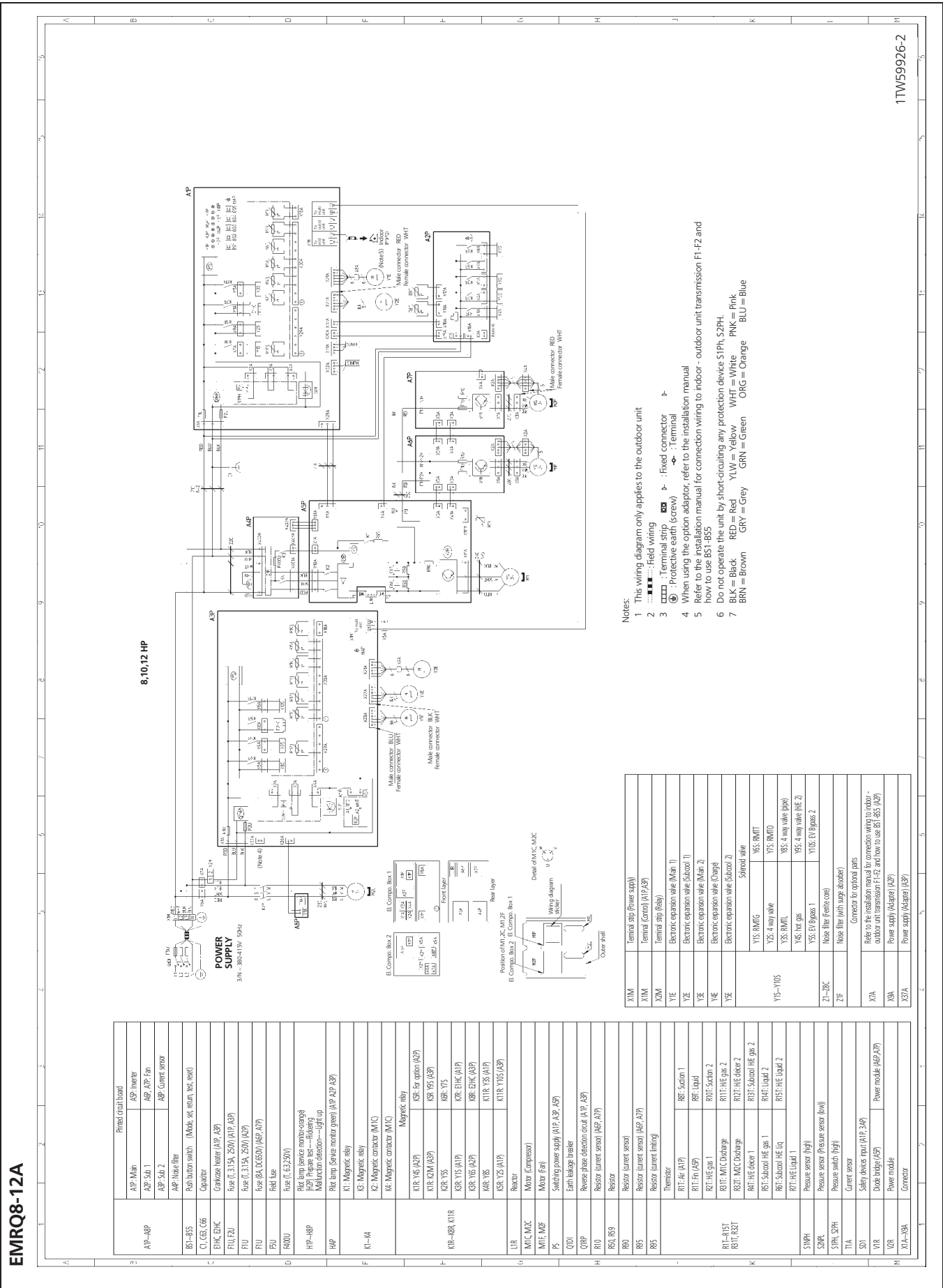
8 Piping diagrams

8 - 1 Piping Diagrams



9 Wiring diagrams

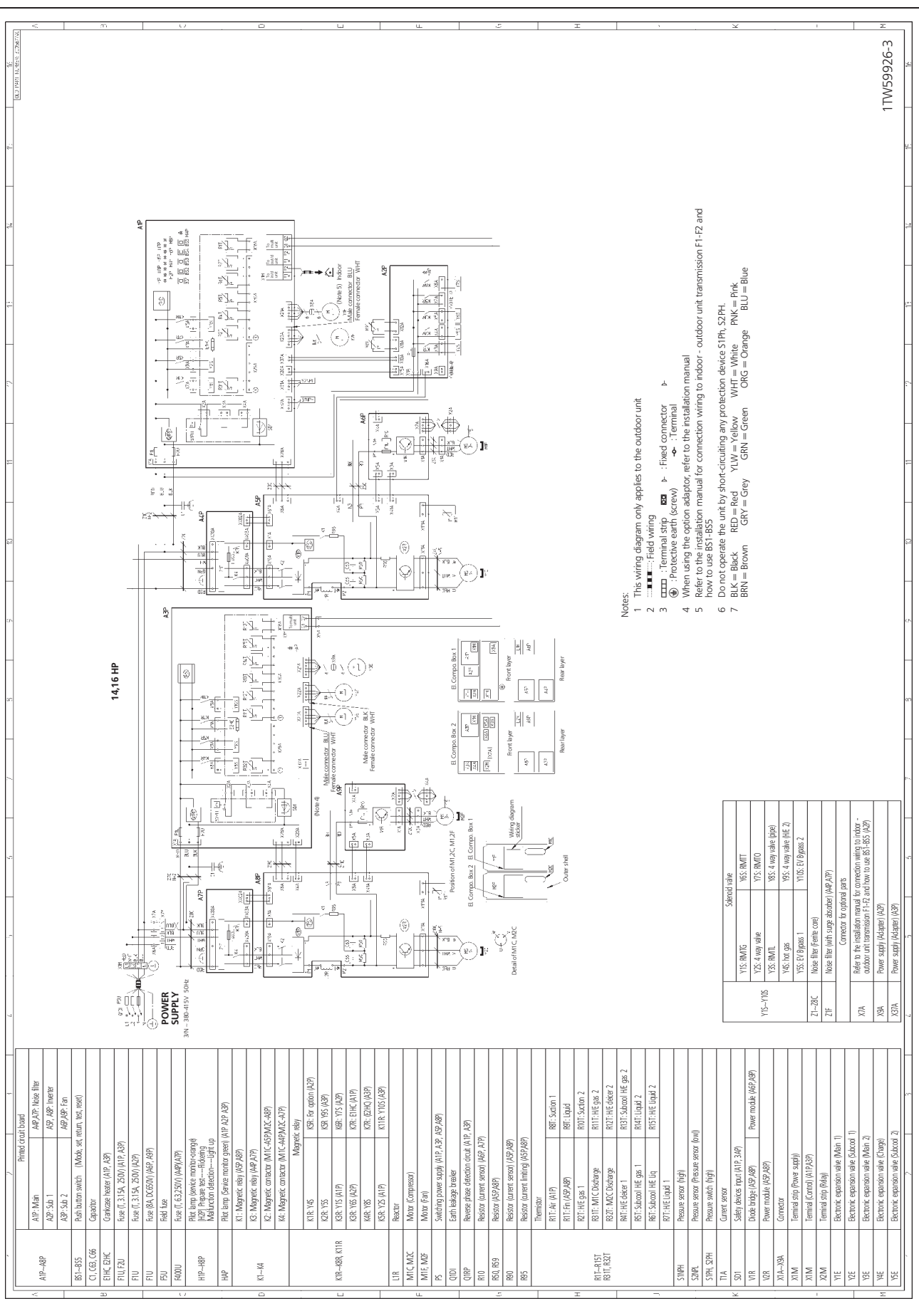
9 - 1 Wiring Diagrams - Single Phase



9 Wiring diagrams

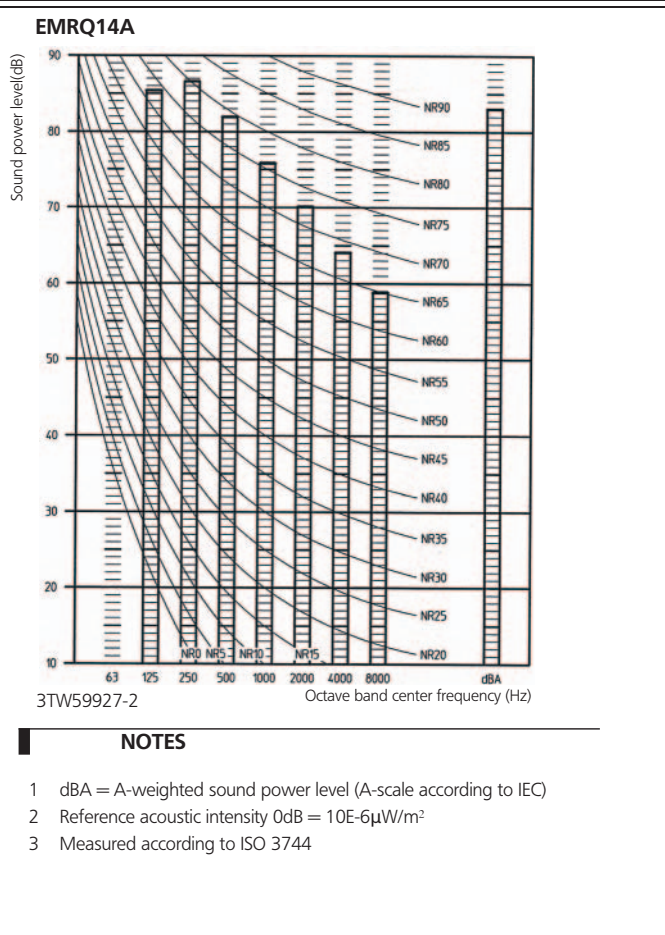
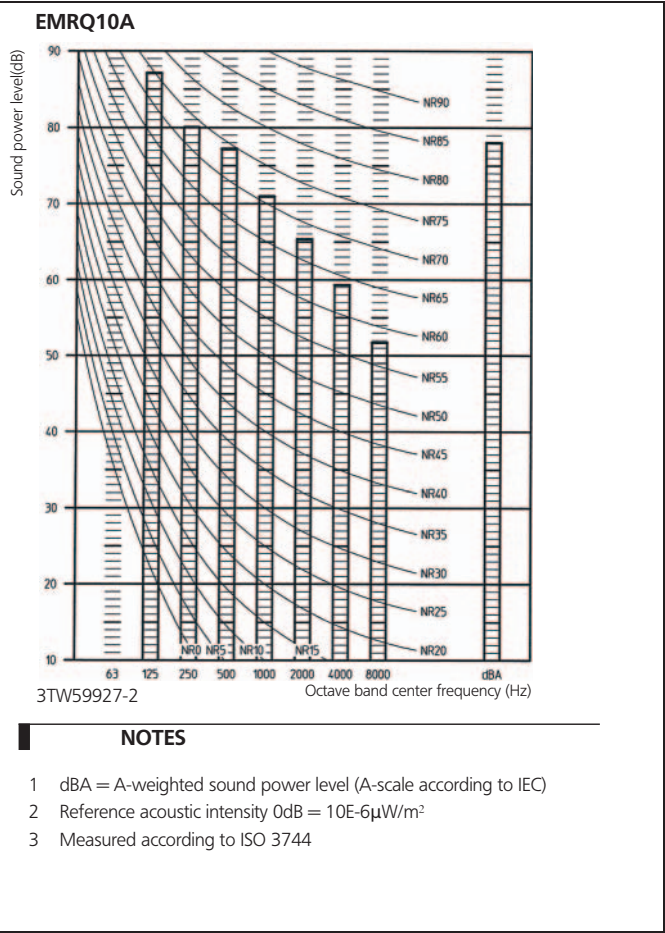
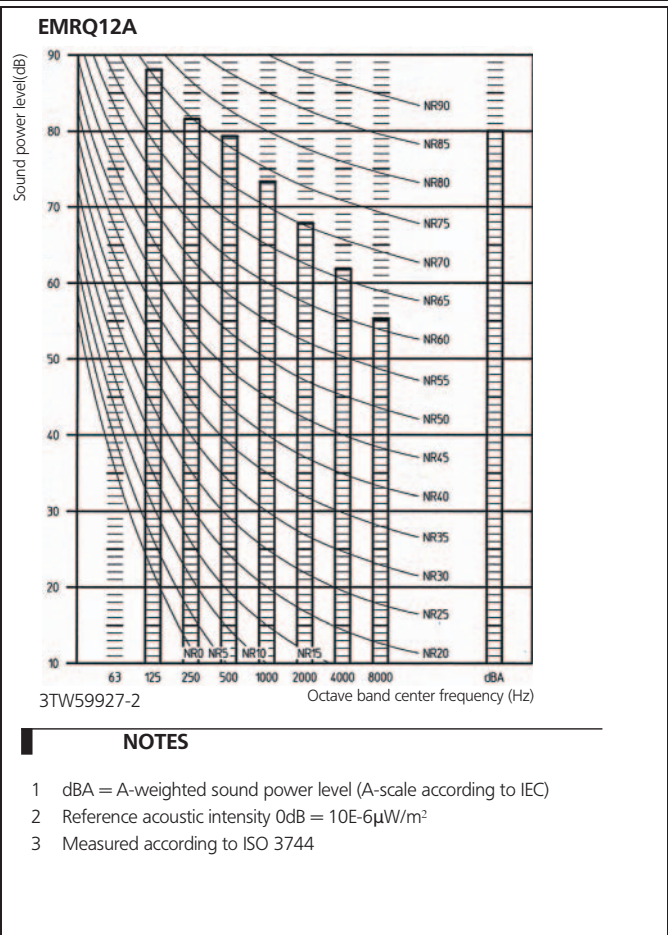
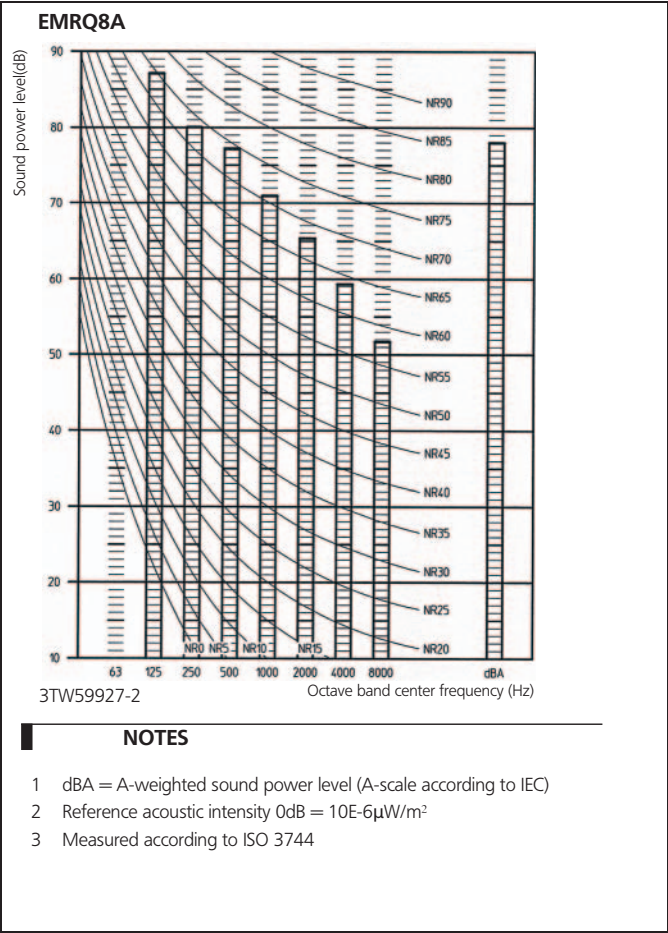
9 - 1 Wiring Diagrams - Single Phase

EMRQ14-16A



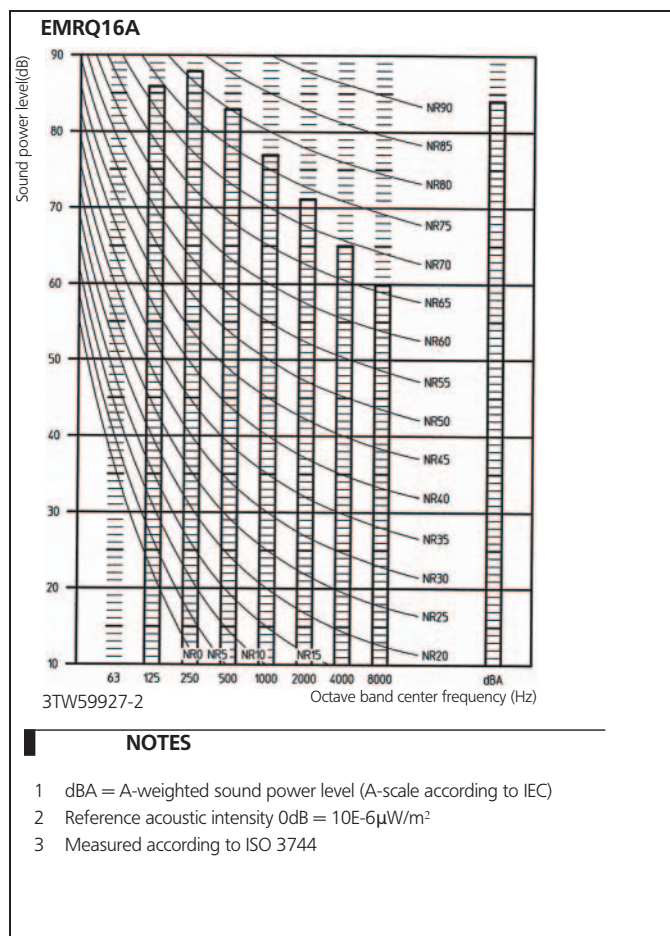
10 Sound data

10 - 1 Sound Power Spectrum



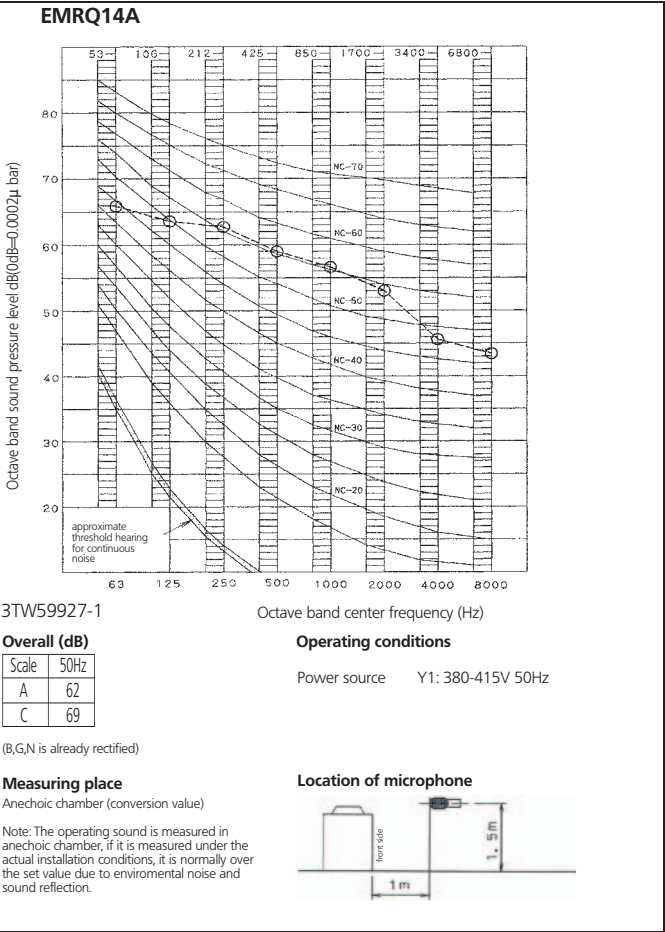
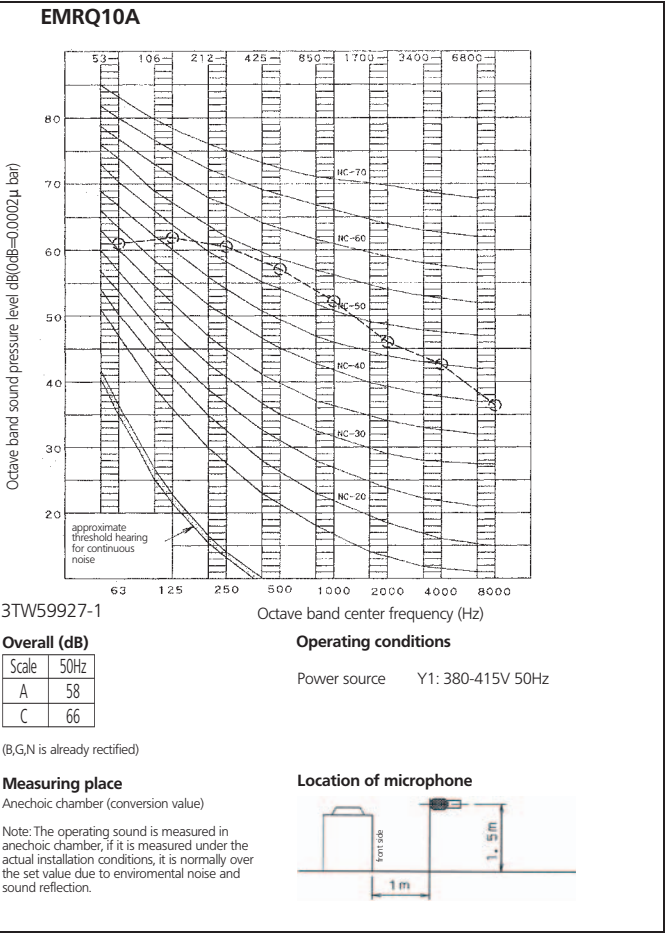
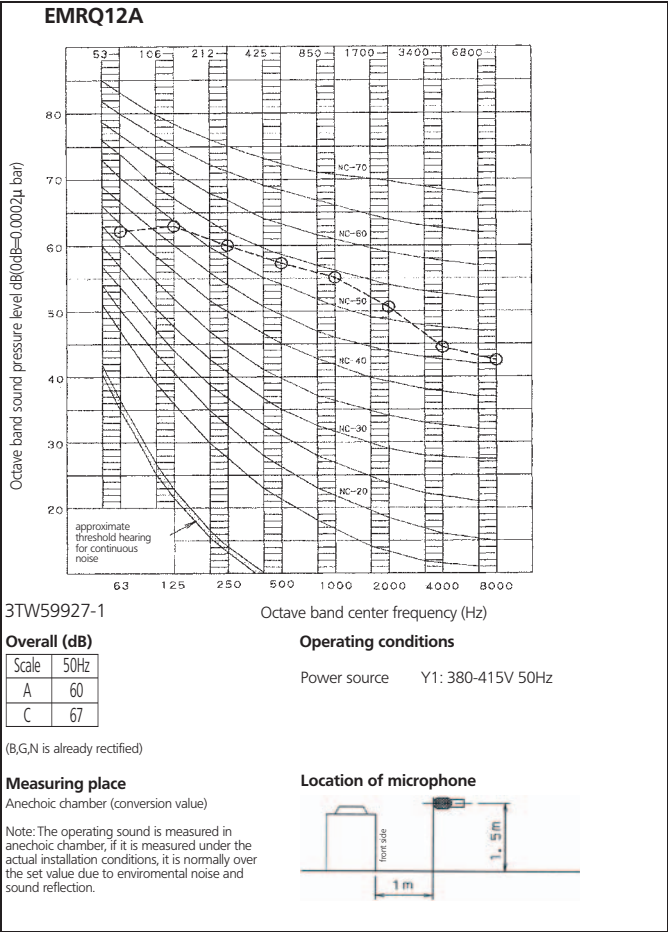
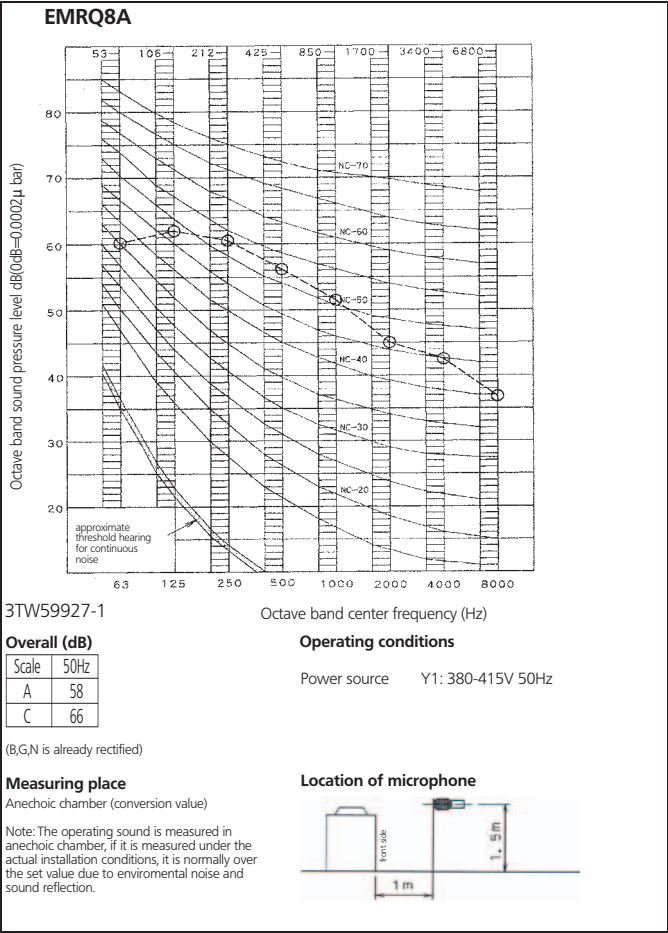
10 Sound data

10 - 1 Sound Power Spectrum



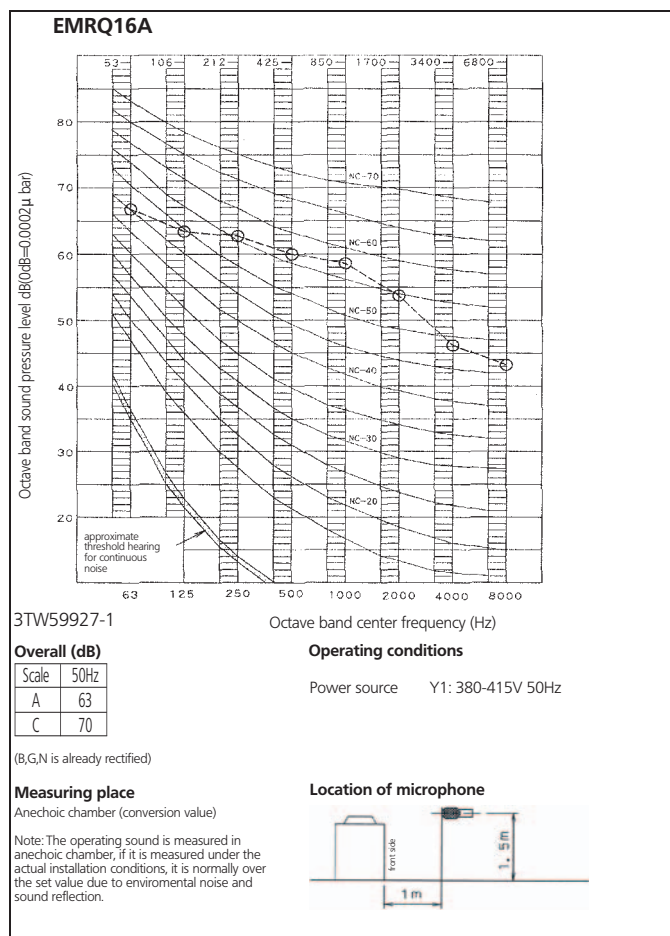
10 Sound data

10 - 2 Sound Pressure Spectrum



10 Sound data

10 - 2 Sound Pressure Spectrum



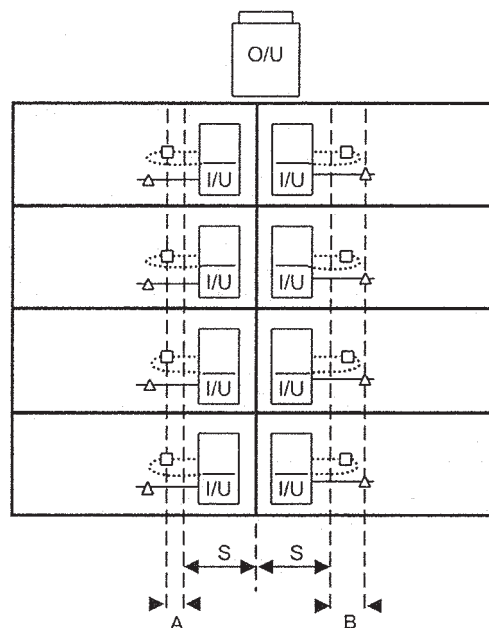
11 Installation

11 - 1 Installation Method

EMRQ8-16A

Heat/cooling meters

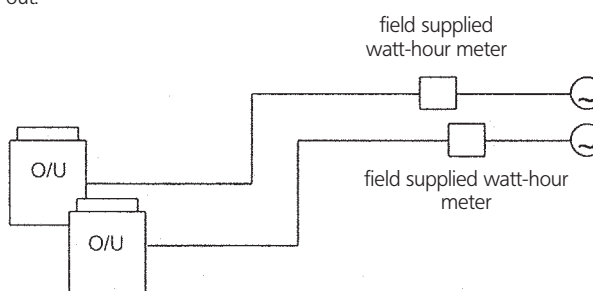
- All meters are to be installed in field piping
- For tank heat meter between tank and indoor unit
Depending on the position of tank to indoor unit, the heat meter is to be installed in field piping between tank and kits mentioned below
 - EKMBIL1 (Option kit for billing of tank mounted on indoor unit)
 - EKFMHTB (Option kit for floor mounted tank)
- See heat and cooling meter documentation of detailed installation instructions
- All meters in the apartment are to be supplied by the same supplier
- To facilitate readout and service work, heat meters should be easily accessible
Choose a mounting location with sufficient clearance for data read-out
- Avoid installation of meters inside indoor unit service space [S] in order to guarantee indoor unit servicing
- All heat meters and heat + cooling meters in the apartment building to be installed at identical piping distance from indoor unit (I/U)
 - Tank heat meter at identical distance (A)
 - Space heat/cooling meters at identical distance (B)
- The flow measuring unit of the meter must be mounted in the return pipe. When mounting the meter, the direction of flow must be observed.
- It is advised to mount the flow measuring unit of the meter between two shut off valves
Before indoor unit start-up, mount a spacer between the two shut off valves.
Prior to mounting the meter, the piping should be thoroughly flushed; for this purpose, the spacer is required.
Remark:
Check supplier documentation if temperature sensors can be mounted in combination with the shut off valves.



- tank side: field supplied heat meter
- △ Space side: field supplied heat + cooling meter

Electrical power meter (kWh meter)

- Install separate watt-hour meter for each outdoor unit
- Before selecting the electrical power meter, it is advised to check the read-out possibilities with the heat meter supplier and/or service company
- Choose a mounting location with sufficient clearance for data read-out.



4TW59919-6A

11 Installation

11 - 1 Installation Method

EMRQ8-16A

Heat/cooling meters

			Space heat/cooling side Heat and cooling meter		Between DHW-I/U Heat meter(*)	DHW Tapping side Heat meter(*)
			Nominal I/U capacity 5,6 kW	Nominal I/U capacity 9 kW		
Temperature	T_{max}	(°C)	85	85	85	85
	T_{min}	(°C)	3	3	3	3
	ΔT_{max}	(K)	40	40	40	83
	ΔT_{min}	(K)	3	3	3	3

Flow	Nominal flow Q_n (at $\Delta T=5K$)	(m³/h)	0,96	1,55		
	Nominal flow Q_n (at $\Delta T=10K$)	(m³/h)	0,48	0,77		
	Nominal flow Q_n (at $\Delta T=15K$)	(m³/h)	0,32	0,52		
	Maximum flow Q_{max}	(m³/h)	2,1	2,1	1,7	2,1
	Minimum response flow	(l/h)	10	10	10	10
	Flow direction		1 direction	1 direction	1 direction	1 direction

pressure	Nominal pressure	(bar)	0,5-3,0	0,5-3,0	0,5-3,0	
	Pressure loss at Q_n	(bar)	<0,25	<0,25	<0,25	
	Maximum pressure loss at Q_{max}	(bar)	0,35	0,35	0,35	
	Maximum working pressure	(bar)	3	3	3	10

Data storage	Minimum storage interval		1 month	1 month	1 month	1 month
	Minimum storage capacity		13 months	13 months	13 months	13 months
	Register	(kWh)	heat + cooling values (**)	heat + cooling values (**)	heat values	heat values

(*) Check local regulations and heat meter documentation for the possibility of mounting the tank heat meter in the drinking water circuit

(**) In case of heating only units, heat meter is sufficient (no heat + cooling meter)

Other - Refer to specifications of tank and indoor unit for selection of required connections with field supplied piping and heat meters

- Minimum requirement for data read out is a display
- No corrosion if contact with water
- The local regulations for the use of heat meters and heat + cooling meters (mounting, sealing, operation . . .) must be complied with.
In absence of regulations, it is advised to consult the heat meter supplier and/or service company

Electrical power meter (kWh meter)

Before selecting the electrical power meter, it is advised to check the read-out possibilities with the heat meter supplier and/or service company

Selection to be based on outdoor unit specifications

Minimum requirement for data read out is a display

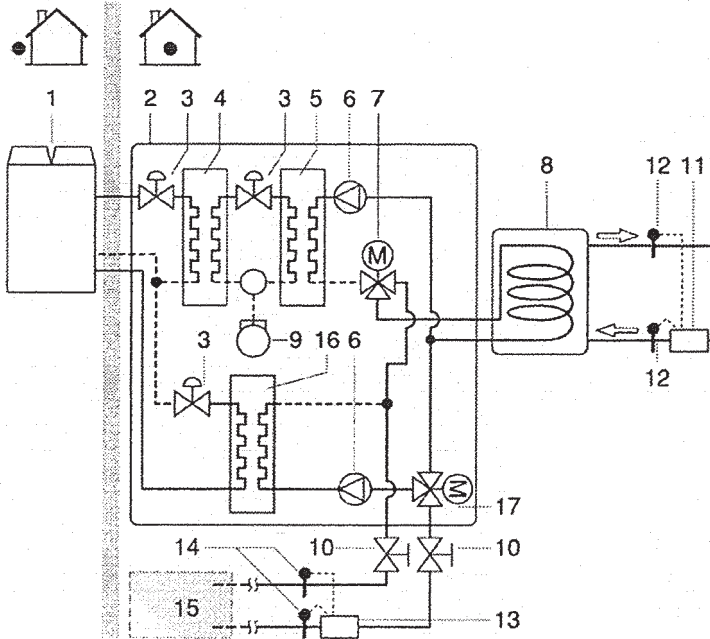
4TW59911-2A

11 Installation

11 - 1 Installation Method

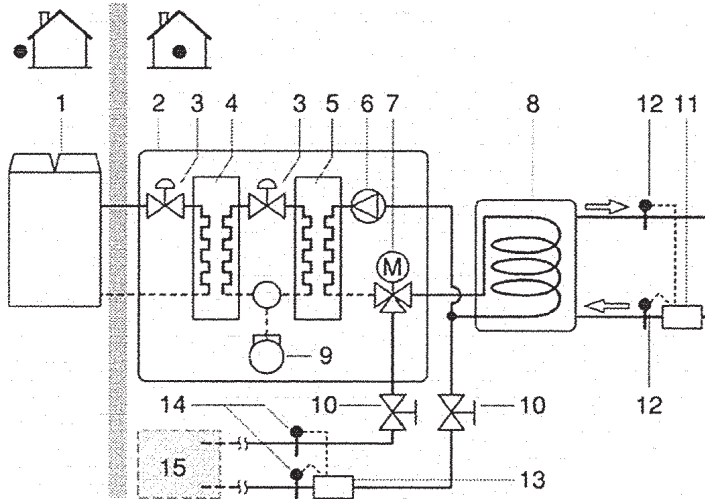
EMRQ8-16A

Indoor Units EKHVMYD*AAV1



- 1 Outdoor unit
- 2 Indoor unit
- 3 Electronic expansion valve
- 4 Refrigerant heat exchanger
- 5 Water heat exchanger
- 6 Pump
- 7 Motorised 3-way valve (Optional)
- 8 Domestic hot water tank (Optional)
- 9 Compressor
- 10 Shut-off valve
- 11 Flow measuring unit of heat meter
- 12 Temperature sensors heat meter
- 13 Flow measuring unit of space heat and cooling meter
- 14 Temperature sensor space heat and cooling meter
- 15 Space heating and cooling applications
- 16 Refrigerant cooling exchanger
- 17 Motorised 3-way valve

Indoor Units EKHVMRD*AAV1



- 1 Outdoor unit
- 2 Indoor unit
- 3 Electronic expansion valve
- 4 Refrigerant heat exchanger
- 5 Water heat exchanger
- 6 Pump
- 7 Motorised 3-way valve (Optional)
- 8 Domestic hot water tank (Optional)
- 9 Compressor
- 10 Shut-off valve
- 11 Flow measuring unit of heat meter
- 12 Temperature sensors heat meter
- 13 Flow measuring unit of space heat meter
- 14 Temperature sensor space heat meter
- 15 Space heating applications

4TW59919-7

11 Installation

11 - 2 Refrigerant Pipe Selection

EMRQ8-16A

Selection of piping material

Note  Piping and other pressure containing parts shall comply with the applicable legislation and shall be suitable for refrigerant. Use phosphoric acid deoxidised seamless copper for refrigerant.

- Foreign materials inside pipes (including oils for fabrication- must be ≤30 mg / 10m.
- Temper grade: use piping with temper grade in function of the pipe diameter as listed in table below.

Pipe ϕ	Temper grade of piping material
≤ 15.9	○
≥ 19.1	1/2H

○ = Annealed
1/2H = Half hard

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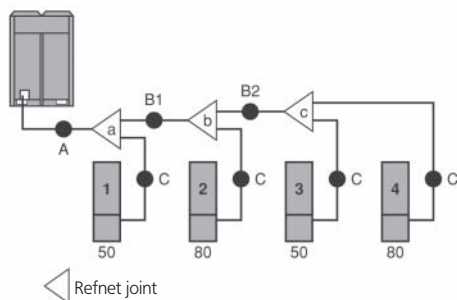
11 Installation

11 - 2 Refrigerant Pipe Selection

EMRQ8-16A

Selection of piping size

- Note
- Reversible indoor units (EKHVMYD) need 3 pipes.
 - Heating only indoor units (EKHVMRD) need 2 pipes (liquid and discharge only).
- Size: determine the proper size referring to following table



Example:

Total capacity connected downstream for B1 = capacity index indoor 2 + capacity index indoor 3 + capacity index indoor 4 = 210
Total capacity connected downstream for B2 = capacity index indoor 3 + capacity index indoor 4 = 130

C. Piping between refrigerant branch kit and indoor unit

Pipe size for direct connection to indoor unit must be the same as the connection size of the indoor unit

Piping outer diameter size (mm)		
Suction gas pipe	Discharge gas pipe	Liquid pipe
15.9	12.7	9.5

- The pipe thickness of the refrigerant piping shall comply with the applicable legislation. The minimal pipe thickness for R410A piping must be in accordance with the table below.

Pipe ϕ	Minimal thickness t (mm)
6.4	0.80
9.5	0.80
12.7	0.80
15.9	0.99
19.1	0.80
22.2	0.80
28.6	0.99

- In case the required pipe sizes (inch sizes) are not available, it is also allowed to use other diameters (mm sizes), taken the following into account
 - select the pipe size nearest to the required size
 - use suitable adapters for the change-over from inch to mm pipes (Field supply)

4PW61262-1

A. Piping between outdoor unit and first branch pipe

Outdoor unit capacity (HP)	Piping outer diameter size (mm)		
	Suction gas pipe	Discharge gas pipe	Liquid pipe
8	19.1	15.9	9.5
10	22.2	19.1	9.5
12	28.6	19.1	12.7
14+16	28.6	22.2	12.7

B. Piping between refrigerant branch kits

Choose from the following table in accordance with the indoor unit total capacity type, connected downstream:

Indoor unit capacity index (Hp)	Piping outer diameter size (mm)		
	Suction gas pipe	Discharge gas pipe	Liquid pipe
<150	15.9	12.7	9.5
150≤<200	19.1	15.9	9.5
200≤<290	22.2	19.1	9.5
290≤<420	28.6	19.1	12.7
420≤<470	28.6	28.6	15.9

11 Installation

11 - 2 Refrigerant Pipe Selection

EMRQ8-16A

Selection of refrigerant branch kits

Refrigerant refnets

- When using refnet joint at the first branch counted from the outdoor unit side, choose from the following table in accordance with the capacity of the outdoor unit (Example: Refnet joint a)

Refrigerant branch kit name		
Outdoor unit type (HP)	3 pipes	2 pipes
8+10	KHRQ23M29T9	KHRQ22M29T9
12+16	KHRQ23M64T	KHRQ22M64T

When all connected indoor units are heating only (EKHVMD, only 2 pipes), at that moment the first refrigerant branch kit is for a 2 pipe system.

If 1 indoor unit is reversible, then you must select a refrigerant branch kit for a 3 pipe system.

- For refnet joint other than the first branch (example refnet joint b and c), select the proper branch kit model based on the total capacity index of all indoor units connected after the refrigerant branch.

Refrigerant branch kit name		
Indoor unit index capacity	3 pipes	2 pipes
<200	KHRQ23M20T	KHRQ22M20T
200≤ x <290	KHRQ23M29T9	KHRQ22M29T
290≤ x <470	KHRQ23M64T	KHRQ22M64T

- Concerning refnet headers, choose from the following table in accordance with the total capacity of all the indoor units connected below the refnet header.

Refrigerant branch kit name		
Indoor unit index capacity	3 pipes	2 pipes
<200	KHRQ23M29H	KHRQ22M29H
200≤ x <290	KHRQ23M29H	KHRQ22M29H
290≤ x <470	KHRQ23M64H	KHRQ22M64H

Note Refrigerant branch kits can only be used with R410A.



4PW61262-1

11 Installation

11 - 2 Refrigerant Pipe Selection

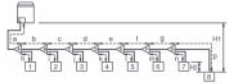
EMRQ8-16A

System piping limitations

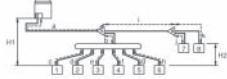
Piping length restrictions

Make sure to perform the piping installation within the range of the maximum allowable pipe length, allowable level difference and allowable length after branching as indicated below

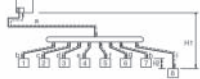
Example 1: Branch with refnet joint



Example 2: Branch with refnet joint and refnet header



Example 3: Branch with refnet header



Maximum allowable lengths

Actual pipe length between outdoor and indoor unit $\leq 100\text{m}$

Example 1: $a+b+c+d+e+f+g+p \leq 100\text{m}$

Example 2: $a+i+k \leq 100\text{m}$

Example 3: $a+i \leq 100\text{m}$

Equivalent piping length between indoor and outdoor units $\leq 125\text{m}$ (equivalent pipe length of refnet to be taken 0.5m and for header 1.0m)

Total piping length from outdoor to all indoor units $\leq 300\text{m}$

Pipe length from first branch kit (either refnet joint or refnet header) to indoor unit $\leq 40\text{m}$

[Example 1]: Unit 8: $b+c+d+e+f+g+p \leq 40\text{m}$

[Example 2]: Unit 6: $b+h \leq 40\text{m}$, Unit 8: $i+k \leq 40\text{m}$

[Example 3]: Unit 8: $i \leq 40\text{m}$

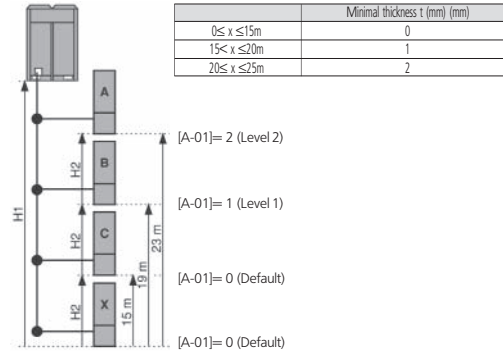
Maximum allowable height difference

Difference in height between outdoor and indoor units $H1 \leq 40\text{m}$

Difference in height between all indoor units $H2 \leq 15\text{m}$

If setting [A-01] is changed, maximum H2 difference can be increased to 25m. Refer to field settings in the indoor unit installation manual.

Example



Note When the equivalent pipe length between outdoor and indoor units is 90 m or more, the size of the main liquid pipe must be increased. Never increase suction gas pipe and discharge gas pipe sizes.

Depending on the length of the piping, the capacity may drop, but even in such a case it is possible to increase the size of the main liquid pipe.

HP	Liquid ϕ (mm)
8~10	9.5 ~ 12.7
12~16	12.7 ~ 15.9

Make sure to perform the piping installation within the range of the maximum allowable pipe length, allowable level difference and allowable length after branching as indicated above

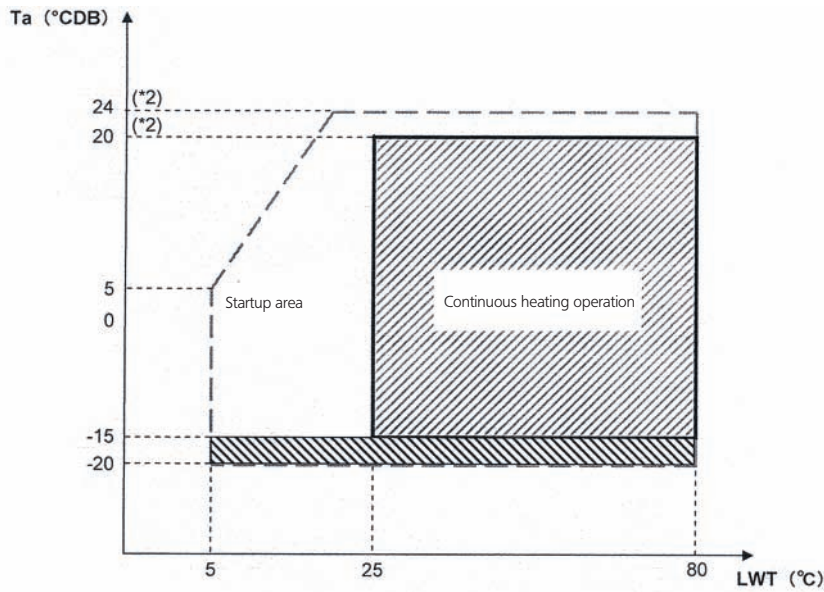
4PW61262-1

12 Operation range

12 - 1 Operation Range

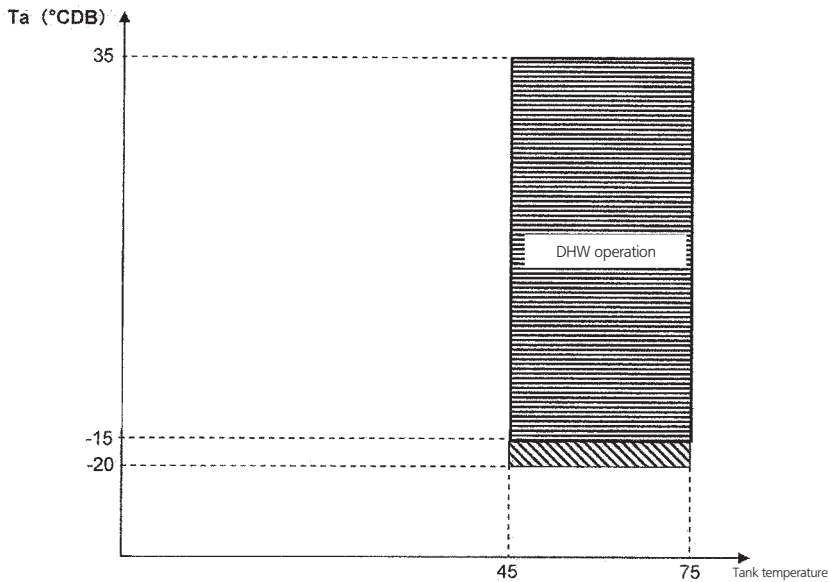
EMRQ-A

Space heating mode



-  : Continuous heating operation
-  : Startup area
-  : operation possible, but no guarantee of capacity
- (*2) : Can be adjusted by field setting

Domestic hot water mode



-  : Domestic hot water operation
-  : operation possible, but no guarantee of capacity

3TW59913-1

12 Operation range

12 - 1 Operation Range

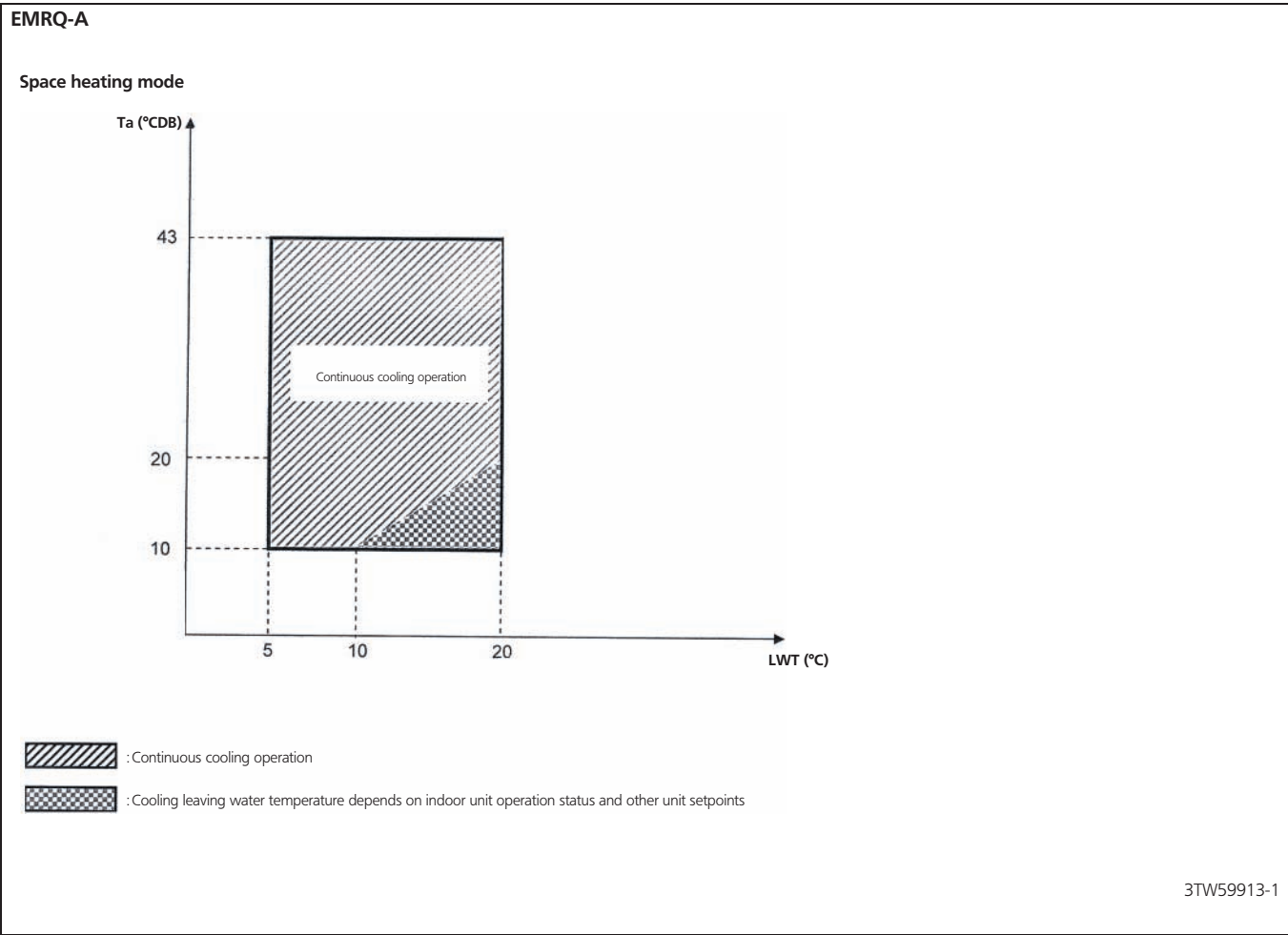


TABLE OF CONTENTS

EKHTS-AC

1	Features	68
2	Specifications	69
	Technical Specifications	69
3	Capacity tables	70
	Heating Capacity Tables	70
4	Dimensional drawings	71
	Dimensional Drawings	71
5	Centre of gravity	73
	Centre of Gravity	73
6	Piping diagrams	75
	Piping Diagrams	75

1 Features

- High temperature application: up to 80°C without electric heater
- Stainless steel domestic hot water tank
- Cost effective alternative to a fossil fuel boiler
- Low energy bills and low CO2 emissions
- Easy to install
- Total solution for year round comfort



2 Specifications

2-1 Technical Specifications					EKHTS200AC		EKHTS260AC	
Casing	Colour				Metallic grey			
	Material				Galvanised steel (precoated sheet metal)			
Dimensions	Unit	Height	Tank	mm	1,335		1,610	
			Integrat ed on indoor unit	mm	2,010		2,285	
		Width		mm	600			
		Depth		mm	695			
	Packed unit	Height		mm	1,470		1,745	
		Width		mm	680			
		Depth		mm	800			
Weight	Unit	Empty		kg	70		78	
	Packed unit	Empty		kg	81		89	
Packing	Material				EPS \ Wood \ Carton		EPS \ Wood \ Carton	
	Weight			kg	11			
Tank	Water volume			l	200		260	
	Material				Stainless steel (EN 1.4521)			
	Maximum water temperature			°C	75			
	Maximum water pressure			bar	10			
	Insulation	Material			EPS			
		Heat loss		kWh/ 24h	1.2		1.5	
Heat exchanger	Quantity				1			
	Tube material				Duplex steel (EN 1.4162)			
	Face area			m²	1.56			
	Internal coil volume			l	7.5			
3-way valve	Coefficient of flow (kV)	Space heating		m³/h	13			
		Domestic hot water tank		m³/h	8			
	Inlet			mm	Male quick coupling ø28.7			
	Outlet	Space heating		mm	Female quick coupling ø28.8			
		Domestic hot water tank		mm	Female quick coupling ø28.8			
	Temperature sensor	Cable length			m	11.5		
Piping connections	Water inlet heat exchanger diameter			inch	G 3/4" F (if kit EKFMAHTB is used - stand alone tank)			
				mm	Female Quick coupling ø25			
	Water outlet heat exchanger diameter			inch	G 3/4" F (if kit EKFMAHTB is used - stand alone tank)			
				mm	Female Quick coupling ø25			
	Cold water in	Diameter		inch	G 3/4" (female)			
	Hot water out	Diameter		inch	G 3/4" (female)			
	Recirculation connection			inch	G 1/2" (male)			
Safety devices	Item	01			Thermal cutout (on indoor unit): 90-95°C			

3 Capacity tables

3 - 1 Heating Capacity Tables

Daikin Altherma HT-TW Domestic hot water tank

The DAIKIN ALTHERMA heat pump in combination with the optional domestic hot water tank provide hot water for household usage. The below mentioned data allow a proper selection of the domestic hot water tank size for maximum comfort and efficiency.

(1) Capacity:

	EKHTS*200	EKHTS*260
Total capacity (L)	210	258
Actual capacity (L)	193,5	250,5

Total capacity = internal volume of tank(= effective water volume+ coil volume)

Actual capacity=effective water volume inside the tank

(2) Maximum volume of usable hot water:

The volume of hot water available for domestic usage depends on the physical volume of the tank, on the domestic water setpoint temperature and on the temperature spreading in the tank.

Definition:

Maximum volume of usable hot water = the volume of hot water available for domestic usage at a temperature of 40°C.
40°C is considered a comfortable domestic hot water temperature. (cold water inlet temp = 10°C)

Tank	Setpoint temp.	Maximum volume of usable hot water	Tapping pattern*			
			Small	Medium	High	very high
EKHTS*200	40	190	+++	+	-	-
	50	255	+++	++	-	-
	60	320	+++	+++	-	-
	70	385	+++	+++	+	-
EKHTS*260	40	250	+++	++	-	-
	50	330	+++	+++	-	-
	60	415	+++	+++	++	-
	70	500	+++	+++	++	+

Grade +++ more than excessive availability of sanitary hot water (more than 40% of EHWV is still available after tapping pattern)
 ++ Excessive availability of sanitary hot water. (10%< EHWV still available after tapping pattern<40%)
 + Sufficient availability of sanitary hot water. (EHWV still available after tapping pattern <10%)
 - Temporary shortage of sanitary hot water can occur.

Tapping pattern**

Small
Medium
High
very high

Daily demand up to 90l -> typical 1-person daily usage pattern
 Daily demand up to 190l -> typical 2-persons daily usage pattern
 Daily demand up to 370l -> typical 3 to 4 persons daily usage pattern
 Daily demand up to 500l -> 5 to 6 persons daily usage pattern

* based upon heat up to tank once / 24 hours

** Heat losses (over 24 hrs) are included in the tapping patterns

(3) Standing Heat loss:

Tank	Heat losses [kWh/24h]
EKHTS*200	1.2
EKHTS*260	1.5

* heat loss of tank at $\Delta T = 45K$

(4) Heat-up time:

Definition:

Heat-up time = The time is required to heat up the domestic hot water tank from 15°C to 60°C (minutes)

Tank	Heat-up time <min>		
	EKHBRD11	EKHBRD14	EKHBRD16
EKHTS*200	60	50	40
EKHTS*260	70	60	50

conditions for testing: Ta = 7°CDB / 6°CWB, TStart = 15°C

(5) Reheat time:

Definition:

Reheat time = The time required to reheat the domestic hot water tank back to 60°C after tapping 70% of the actual volume.

Tank	Reheat time <min>		
	EKHBRD11	EKHBRD14	EKHBRD16
EKHTS*200	50	40	30
EKHTS*260	60	50	40

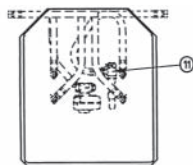
Starting condition before tapping 70% of volume: tank at 60°C
 conditions for testing: Ta = 7°CDB / 6°CWB, TCold = 15°C

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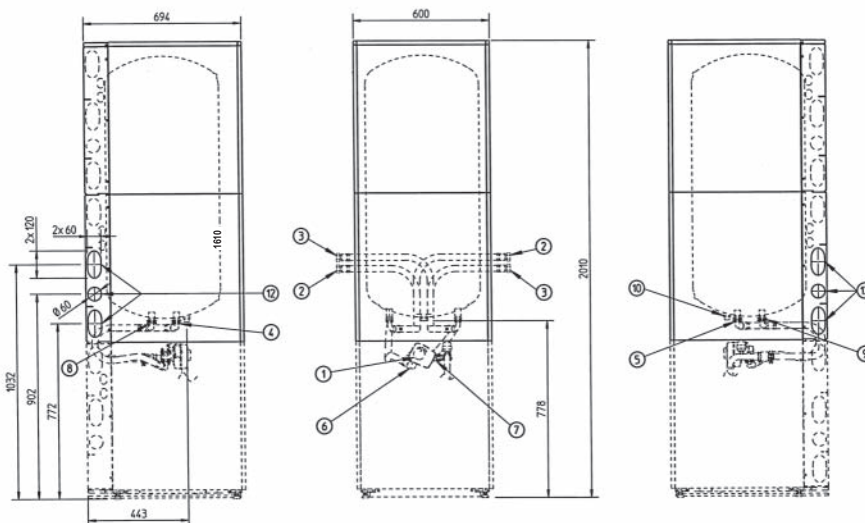
4 Dimensional drawings

4 - 1 Dimensional Drawings

EKHTS200AC + EKHBDRD-AB
EKHTS200AC + EKHVMR/YD-A



1	3-way valve
2	Hot water out connection G 3/4" (female)
3	Cold water in connection G 3/4" (female)
4	Hot water out (quick coupling) at bottom tank
5	Cold water in (quick coupling) at bottom tank
6	Tank connection from indoor unit (quick coupling)
7	Tank connection to indoor unit (quick coupling)
8	Tank connection from indoor unit (quick coupling) at bottom tank
9	Tank connection to indoor unit (quick coupling) at bottom tank
10	Recirculation connection G 1/2" (male)
11	T-joint (in case of EKHBDRD*)
12	Knock-out holes for water piping

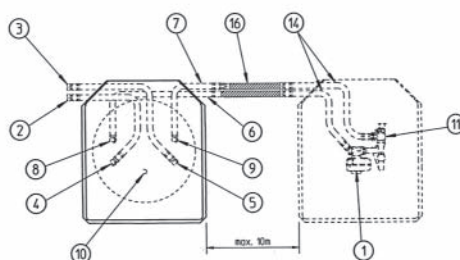


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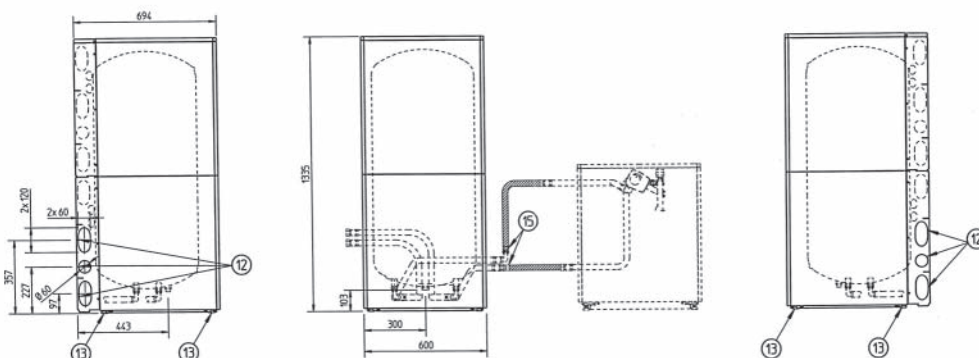
NOTE

For indoor unit details refer to 3TW59854-1 (EKHBDRD*) or 3TW59914-1 (EKHVM*)

EKHTS200AC + EKHBDRD-AB
EKHTS200AC + EKHVMR/YD-AA



1	3-way valve
2	Hot water out connection G 3/4" (female)
3	Cold water in connection G 3/4" (female)
4	Hot water out (quick coupling) at bottom tank
5	Cold water in (quick coupling) at bottom tank
6	Tank connection from indoor unit (quick coupling)
7	Tank connection to indoor unit (quick coupling)
8	Tank connection from indoor unit (quick coupling) at bottom tank
9	Tank connection to indoor unit (quick coupling) at bottom tank
10	Recirculation connection G 1/2" (male)
11	T-joint (in case of EKHBDRD*)
12	Knock-out holes for water piping
13	Levelling feet (in option kit EKFMAHTB)
14	Flexible pipes (in option kit EKFMAHTB)
15	Adaptor quick connection - G 3/4" (in option kit EKFMAHTB)
16	Field piping



3TW60444-2

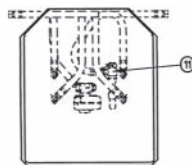
NOTE

For indoor unit details refer to 3TW59854-1 (EKHBDRD*) or 3TW59914-1 (EKHVM*)

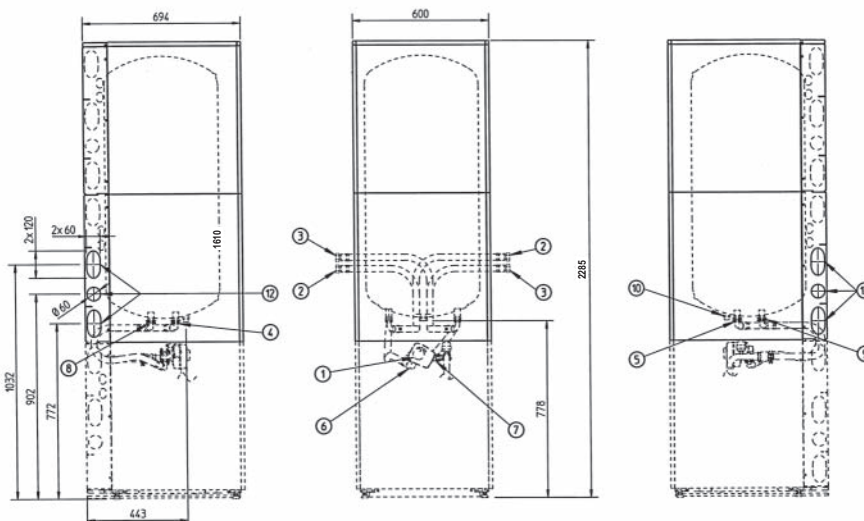
4 Dimensional drawings

4 - 1 Dimensional Drawings

EKHTS260AC + EKHBRD-AB
EKHTS260AC + EKHVMR/YD-A



1	3-way valve
2	Hot water out connection G 3/4" (female)
3	Cold water in connection G 3/4" (female)
4	Hot water out (quick coupling) at bottom tank
5	Cold water in (quick coupling) at bottom tank
6	Tank connection from indoor unit (quick coupling)
7	Tank connection to indoor unit (quick coupling)
8	Tank connection from indoor unit (quick coupling) at bottom tank
9	Tank connection to indoor unit (quick coupling) at bottom tank
10	Recirculation connection G 1/2" (male)
11	T-joint (in case of EKHBRD*)
12	Knock-out holes for water piping

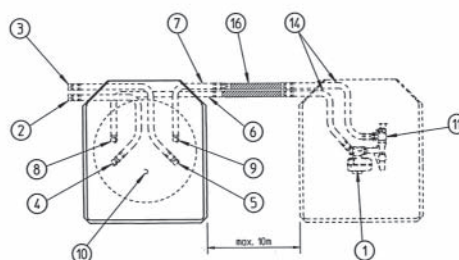


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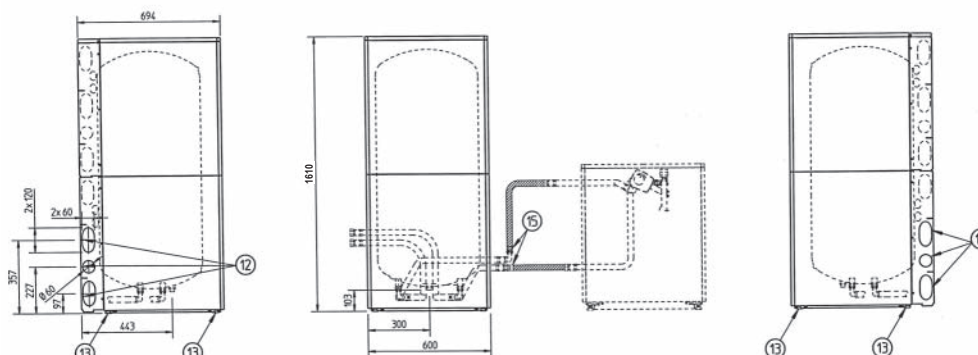
NOTE

For indoor unit details refer to 3TW59854-1 (EKHBRD*) or 3TW59914-1 (EKHVM*)

EKHTS260AC + EKHBRD-AB
EKHTS260AC + EKHVMR/YD-AA



1	3-way valve
2	Hot water out connection G 3/4" (female)
3	Cold water in connection G 3/4" (female)
4	Hot water out (quick coupling) at bottom tank
5	Cold water in (quick coupling) at bottom tank
6	Tank connection from indoor unit (quick coupling)
7	Tank connection to indoor unit (quick coupling)
8	Tank connection from indoor unit (quick coupling) at bottom tank
9	Tank connection to indoor unit (quick coupling) at bottom tank
10	Recirculation connection G 1/2" (male)
11	T-joint (in case of EKHBRD*)
12	Knock-out holes for water piping
13	Levelling feet (in option kit EKFMHTB)
14	Flexible pipes (in option kit EKFMHTB)
15	Adaptor quick connection - G 3/4" (in option kit EKFMHTB)
16	Field piping



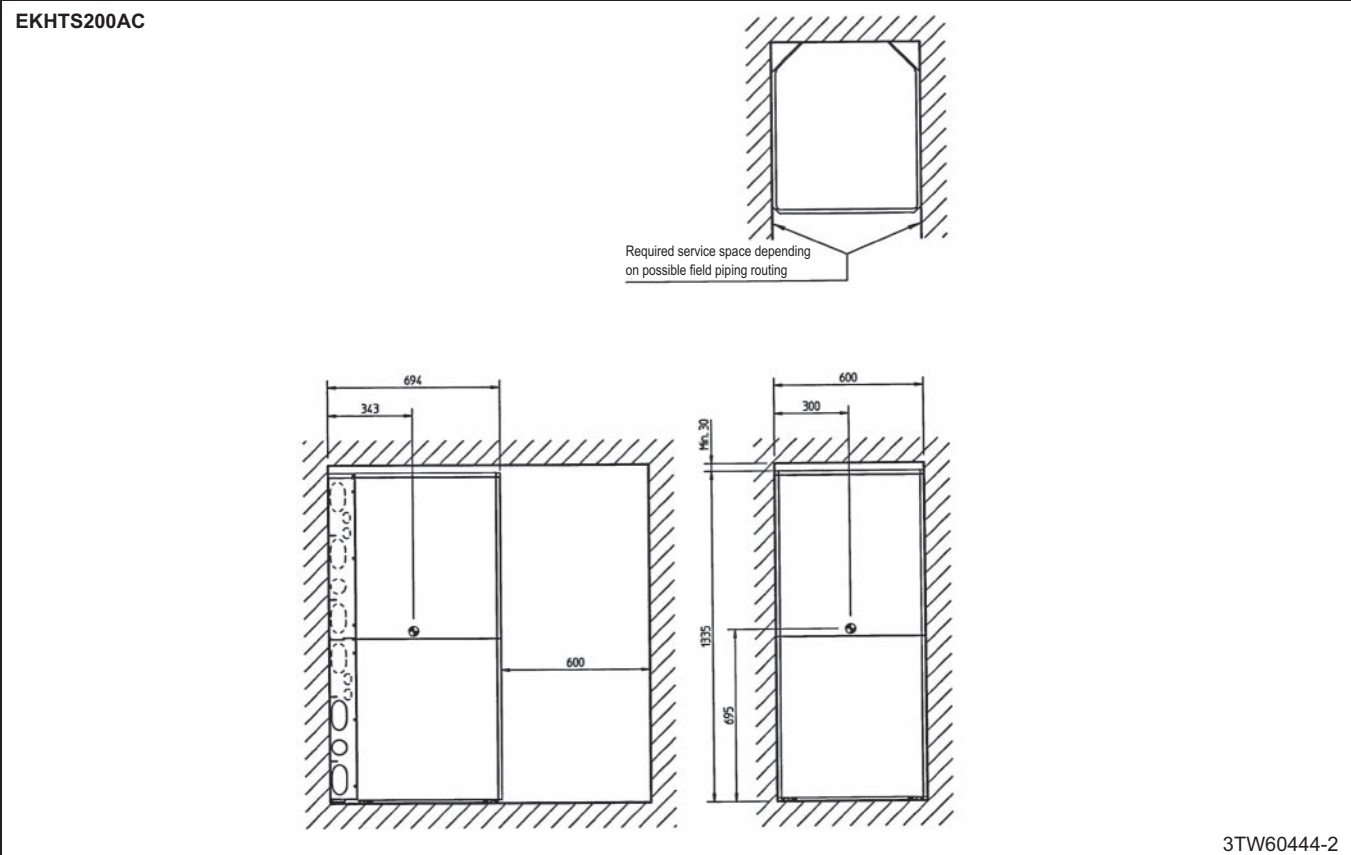
3TW60444-2

NOTE

For indoor unit details refer to 3TW59854-1 (EKHBRD*) or 3TW59914-1 (EKHVM*)

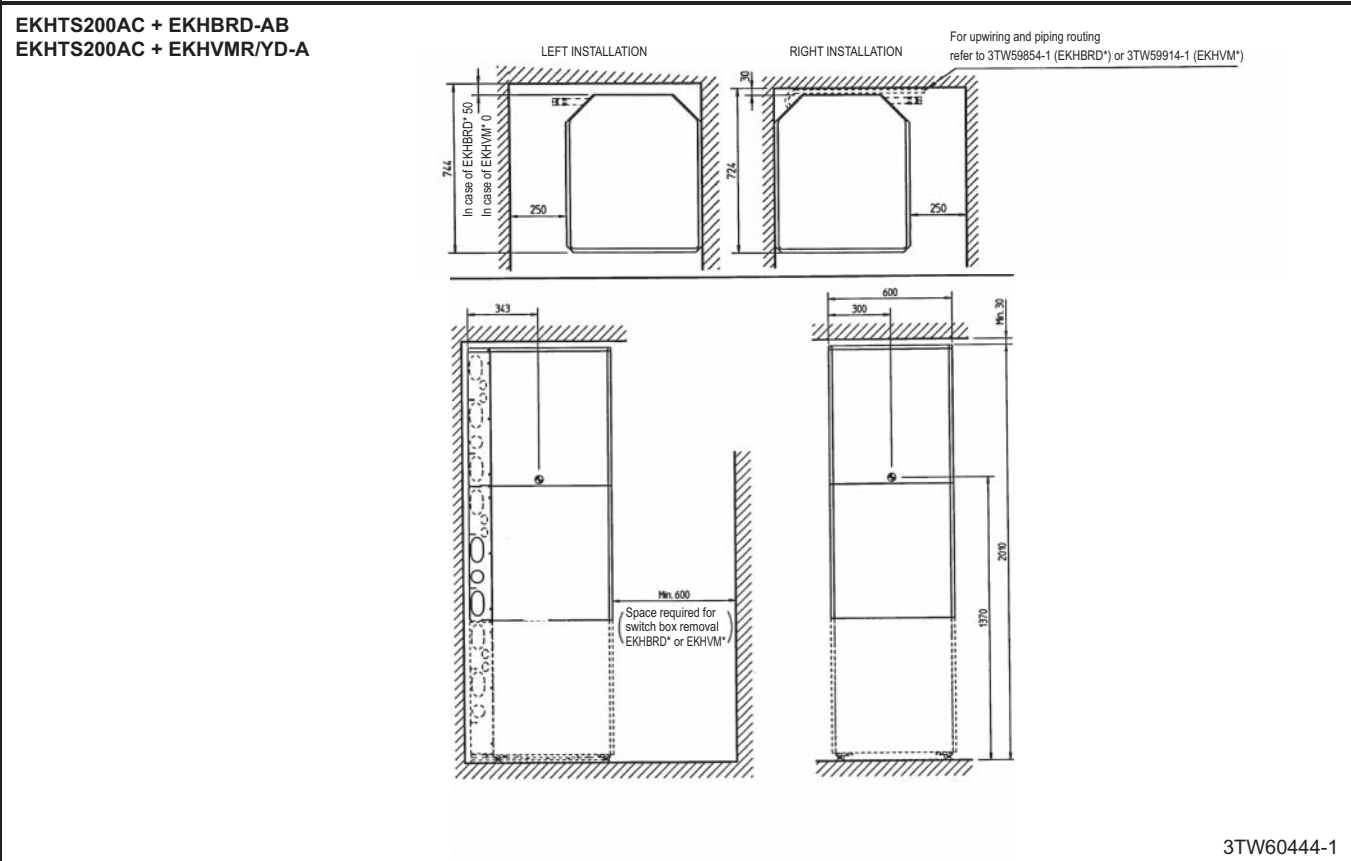
5 Centre of gravity

5 - 1 Centre of Gravity



NOTE

For indoor unit details refer to 3TW59854-1 (EKHBRD*) or 3TW59914-1 (EKHVM*)



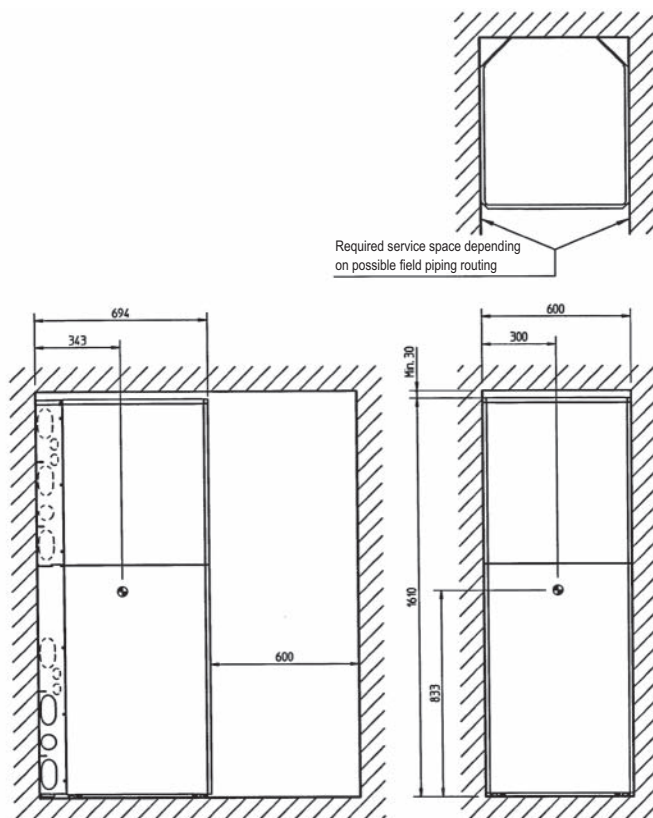
NOTE

Center of gravity only for EKHTS*AC

5 Centre of gravity

5 - 1 Centre of Gravity

EKHTS260AC

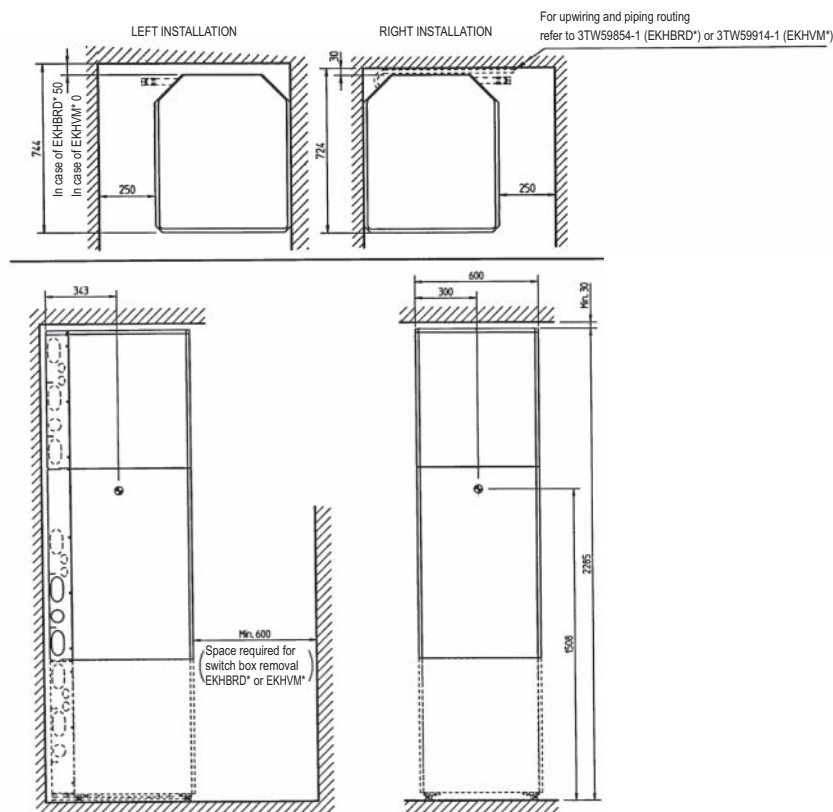


3TW60444-2

NOTE

For indoor unit details refer to 3TW59854-1 (EKHBRD*) or 3TW59914-1 (EKHVM*)

EKHTS260AC + EKHBRD-AB
EKHTS260AC + EKHVMR/YD-A



3TW60444-1

NOTE

Center of gravity only for EKHTS*AC

6 Piping diagrams

6 - 1 Piping Diagrams

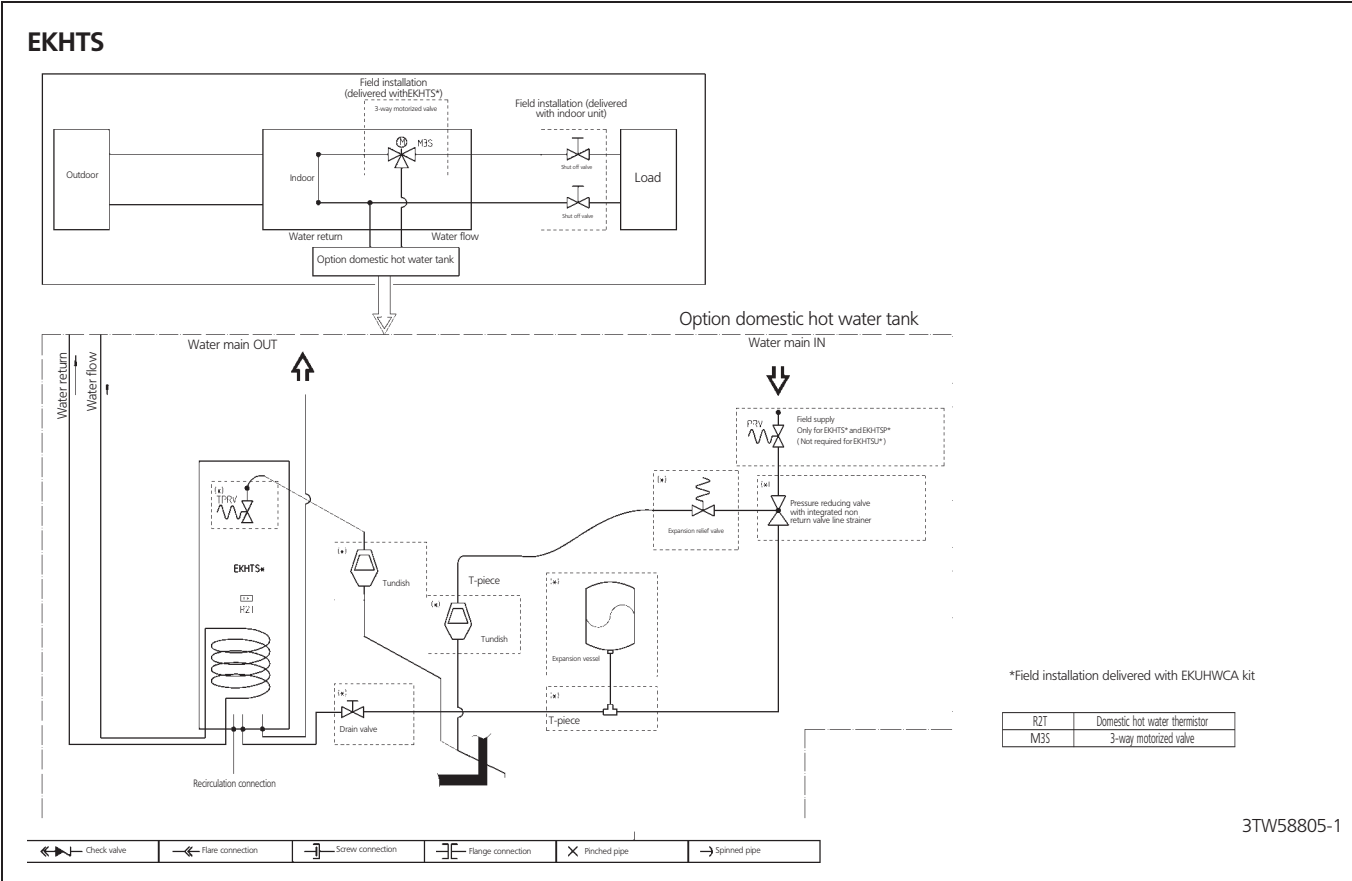


TABLE OF CONTENTS

FWXV-A

1	Features	78
2	Specifications	79
	For indoor units only	79
	Technical Specifications	79
	Electrical Specifications	80
3	Capacity tables	81
	Heating capacity tables	81
	Cooling capacity tables	82
4	Dimensional drawing & centre of gravity	83
	Dimensional drawing	83
	Centre of gravity	84
5	Piping diagram.....	85
	Piping diagram	85
6	Wiring diagram.....	86
	Wiring diagram	86
7	Sound data	87
	Sound pressure spectrum	87
8	Hydraulic performance.....	88
	Static pressure drop unit	88

1 Features

- Optimal energy efficiency when connected to a Daikin Altherma system, thanks to the interlink function
- Stylish design
- Flat front panel: its stylish appearance blends easily within any interior décor and is more easy to clean.
- Titanium apatite photocatalytic air purification filter
- Can be installed against a wall or recessed
- Lightweight but sturdy design



5

1



5 steps



standard



2 Specifications

2-1 For indoor units only				FWXV15AVEB	FWXV20AVEB
Nominal input (Indoor only)	Cooling		kW	0.013	0.015
	Heating		kW	0.013	0.015
Heating capacity	Total capacity	Nom.	kW	1.5	2.0
	Water volume	Nom.	m ³ /hr	0.26	0.34
			l/min	4.3	5.7
	Water pressure drop	Nom.	kPa	13	22
Cooling capacity	Total capacity	Nom.	kW	1.2	1.7
	Sensible capacity	Nom.	kW	0.98	1.4
	Water volume	Nom.	m ³ /hr	0.20	0.29
			l/min	3.4	4.9
	Water pressure drop	Nom.	kPa	10	17

2-2 Technical Specifications				FWXV15AVEB		FWXV20AVEB	
Casing	Colour			White			
Dimensions	Packing	Height	mm	696		696	
		Width	mm	786		786	
		Depth	mm	286		286	
	Unit	Height	mm	600		600	
		Width	mm	700		700	
		Depth	mm	210		210	
Weight	Unit		kg	15		15	
	Packed Unit		kg	19		19	
Heat Exchanger	Dimensions	Length	mm	510		510	
		Nr of Rows		2		2	
		Fin Pitch	mm	1.2		1.2	
		Nr of Stages		22		22	
	Tube type			ø6.35 Smooth tube			
	Fin	Type		Multi slit fin			
Fan	Type			Turbo fan			
Air Flow Rate	Heating	High	m³/h	318		474	
		Medium	m³/h	228		354	
		Low	m³/h	150		240	
		Silent Operation	m³/h	126		198	
	Cooling	High	m³/h	318		474	
		Medium	m³/h	228		354	
		Low	m³/h	150		240	
		Silent Operation	m³/h	126		198	
Fan	Motor	Model		D48D-28			
		Number of steps		5 steps, silent and auto			
Motor	Speed (heating)	High	rpm	400		560	
		Medium	rpm	310		440	
		Low	rpm	230		320	
		Silent Operation	rpm	210		280	
	Speed (cooling)	High	rpm	400		560	
		Medium	rpm	310		440	
		Low	rpm	230		320	
		Silent Operation	rpm	210		280	
Heating	Sound Power	Medium	dBA	35		45	
	Sound Pressure	Medium	dBA	19		29	
Cooling	Sound Power	Medium	dBA	35		45	
	Sound Pressure	Medium	dBA	19		29	
Piping connections	Liquid ID/OD	Diameter	inch	G1/2 / G1/2		G1/2 / G1/2	
	Gas ID/OD	Diameter	inch	G1/2 / G1/2		G1/2 / G1/2	
	Drain	Diameter	mm	18			
	Heat Insulation			Both inlet and outlet pipes			
Air Filter				Removable/washable/Mildew proof			
Air direction control				Right, Left, Horizontal, Downward			
Temperature control				Microcomputer control			

2 Specifications

2-2 Technical Specifications		FWXV15AVEB	FWXV20AVEB
Standard Accessories	Item	Installation manual	
	Quantity	1	1
	Item	Operation manual	
	Quantity	1	1
	Item	Wireless remote control	
	Quantity	1	1
	Item	Batteries	
	Quantity	2	2
	Item	Remote control holder	
	Quantity	1	1
	Item	Drain hose	
	Quantity	1	1
	Item	Photocatalytic filter (apatite)	
	Quantity	2	2
	Item	Thermal insulation tape	
	Quantity	2	2
	Item	Thermal insulation tube	
	Quantity	2	2
	Item	Connection pipe	
	Quantity	2	2
	Item	Binding band	
	Quantity	1	1
	Item	O Ring	
	Quantity	4	4
Notes		Cooling: indoor temp. 27°CDB, 19°CWB; entering water temp. 7°C, water temperature rise 5K.	
		Heating: indoor temp. 20°CDB; entering water temp. 45°C, water temperature drop 5K.	
		The range of usable water temperature is 6°C (min.) to 60°C (max.)	
		Maximum allowable water pressure is 1.18 MPa	
		Comply with drinking water directive 98/93/EC for chilled water, hot water and make up water.	
		The amount of water circulation should be 3l/min to 15l/min (0.18m³/hr to 0.9m³/hr)	
		Allowable model of hydrobox interlinking is BA-series	

2-3 Electrical Specifications				FWXV15AVEB	FWXV20AVEB
Power Supply	Name			VE	
	Phase			1	1
	Frequency	Hz		50/60	50/60
	Voltage	V		220-240 / 220	
Current	Nominal running current (RLA)	Heating	A	0.08	0.10
		Cooling	A	0.08	0.10

3 Capacity tables

3 - 1 Heating capacity tables

FWXV15-20A

Heating capacity tables

Air temperature (°C)		20°C														
Water temperature (Entering °C - leaving °C)		35°C-30°C			45°C-40°C			50°C-45°C			55°C-45°C			60°C-50°C		
Model	Fan	Heating capacity	Water flow	Water pressure drop	Heating capacity	Water flow	Water pressure drop	Heating capacity	Water flow	Water pressure drop	Heating capacity	Water flow	Water pressure drop	Heating capacity	Water flow	Water pressure drop
		kW	L/min	kPa	kW	L/min	kPa	kW	L/min	kPa	kW	L/min	kPa	kW	L/min	kPa
FWXV15AVEB	H	1.12	3.2	7	2.00	5.7	22	2.43	7.0	32	2.95	4.1	12	3.27	4.7	15
	M	0.83	2.4	4	1.50	4.3	13	1.82	5.2	19	2.13	3.1	7	2.44	3.5	9
	L	0.50	1.4	2	1.00	2.9	6	1.35	3.9	10	1.43	2.0	3	1.64	2.4	4
FWXV20AVEB	H	1.65	4.7	15	3.00	8.6	49	3.67	10.5	71	4.33	6.2	26	4.99	7.2	34
	M	1.12	3.2	7	2.00	5.7	22	2.43	7.0	32	2.96	4.1	12	3.29	4.7	15
	L	0.83	2.4	4	1.50	4.3	13	1.82	5.2	19	2.13	3.1	7	2.44	3.5	9

Air temperature (°CDB-°CWB)		22°CDB														
Water temperature (Entering °C - leaving °C)		35°C-30°C			45°C-40°C			50°C-45°C			55°C-45°C			60°C-50°C		
Model	Fan	Heating capacity	Water flow	Water pressure drop	Heating capacity	Water flow	Water pressure drop	Heating capacity	Water flow	Water pressure drop	Heating capacity	Water flow	Water pressure drop	Heating capacity	Water flow	Water pressure drop
		kW	L/min	kPa	kW	L/min	kPa	kW	L/min	kPa	kW	L/min	kPa	kW	L/min	kPa
FWXV15AVEB	H	1.01	2.9	6	1.84	5.3	19	2.27	6.5	28	2.69	3.9	10	3.11	4.5	14
	M	0.75	2.2	3	1.38	4.0	11	1.70	4.9	16	2.01	2.9	6	2.31	3.3	8
	L	0.45	1.3	1	0.92	2.6	5	1.26	3.6	9	1.35	1.9	3	1.55	2.2	4
FWXV20AVEB	H	1.48	4.2	13	2.76	7.9	41	3.42	9.8	62	4.08	5.8	23	4.74	6.8	31
	M	1.00	2.9	6	1.84	5.3	19	2.27	6.5	28	2.70	3.9	10	3.12	4.5	14
	L	0.75	2.2	3	1.38	4.0	11	1.70	4.9	16	2.01	2.9	6	2.31	3.3	8

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3 Capacity tables

3 - 2 Cooling capacity tables

FWXV15-20A

Cooling capacity tables

Air temperature (°CDB-°CWB)		27°CDB-19°CWB															
Water temperature (Entering °C - leaving °C)		6°C-11°C				7°C-12°C				8°C-13°C				9°C-14°C			
Model	Fan	Total cooling capacity kW	Sensible cooling capacity kW	Water flow L/min	Water pressure drop kPa	Total cooling capacity kW	Sensible cooling capacity kW	Water flow L/min	Water pressure drop kPa	Total cooling capacity kW	Sensible cooling capacity kW	Water flow L/min	Water pressure drop kPa	Total cooling capacity kW	Sensible cooling capacity kW	Water flow L/min	Water pressure drop kPa
FWXV15AVEB	H	1.77	1.44	5.1	20	1.70	1.39	4.9	19	1.55	1.31	4.4	16	1.41	1.25	4.0	13
	M	1.25	1.00	3.6	10	1.20	0.98	3.4	10	1.09	0.92	3.1	8	1.00	0.88	2.9	7
	L	0.83	0.67	2.4	5	0.80	0.66	2.3	4	0.73	0.62	2.1	4	0.66	0.59	1.9	3
FWXV20AVEB	H	2.60	2.13	7.5	42	2.50	2.05	7.2	39	2.28	1.93	6.5	33	2.08	1.85	6.0	27
	M	1.77	1.46	5.1	20	1.70	1.40	4.9	19	1.55	1.32	4.4	16	1.41	1.26	4.0	13
	L	1.25	1.03	3.6	10	1.20	0.99	3.4	10	1.09	0.93	3.1	8	1.00	0.89	2.9	7

Air temperature (°CDB-°CWB)		22°CDB-16°CWB															
Water temperature (Entering °C - leaving °C)		6°C-11°C				7°C-12°C				8°C-13°C				9°C-14°C			
Model	Fan	Total cooling capacity kW	Sensible cooling capacity kW	Water flow L/min	Water pressure drop kPa	Total cooling capacity kW	Sensible cooling capacity kW	Water flow L/min	Water pressure drop kPa	Total cooling capacity kW	Sensible cooling capacity kW	Water flow L/min	Water pressure drop kPa	Total cooling capacity kW	Sensible cooling capacity kW	Water flow L/min	Water pressure drop kPa
FWXV15AVEB	H	1.31	1.09	3.8	11	1.19	1.03	3.4	9	1.06	0.99	3.0	7	0.93	0.93	2.7	6
	M	0.93	0.76	2.7	6	0.84	0.74	2.4	5	0.74	0.72	2.1	4	0.66	0.66	1.9	3
	L	0.61	0.51	1.7	3	0.56	0.50	1.6	2	0.50	0.49	1.4	2	0.44	0.44	1.3	1
FWXV20AVEB	H	1.92	1.62	5.5	23	1.75	1.52	5.0	20	1.55	1.41	4.4	16	1.37	1.37	3.9	12
	M	1.31	1.11	3.8	11	1.19	1.05	3.4	9	1.04	1.03	3.0	7	0.93	0.93	2.7	6
	L	0.93	0.78	2.7	6	0.84	0.75	2.4	5	0.74	0.73	2.1	4	0.66	0.66	1.9	3

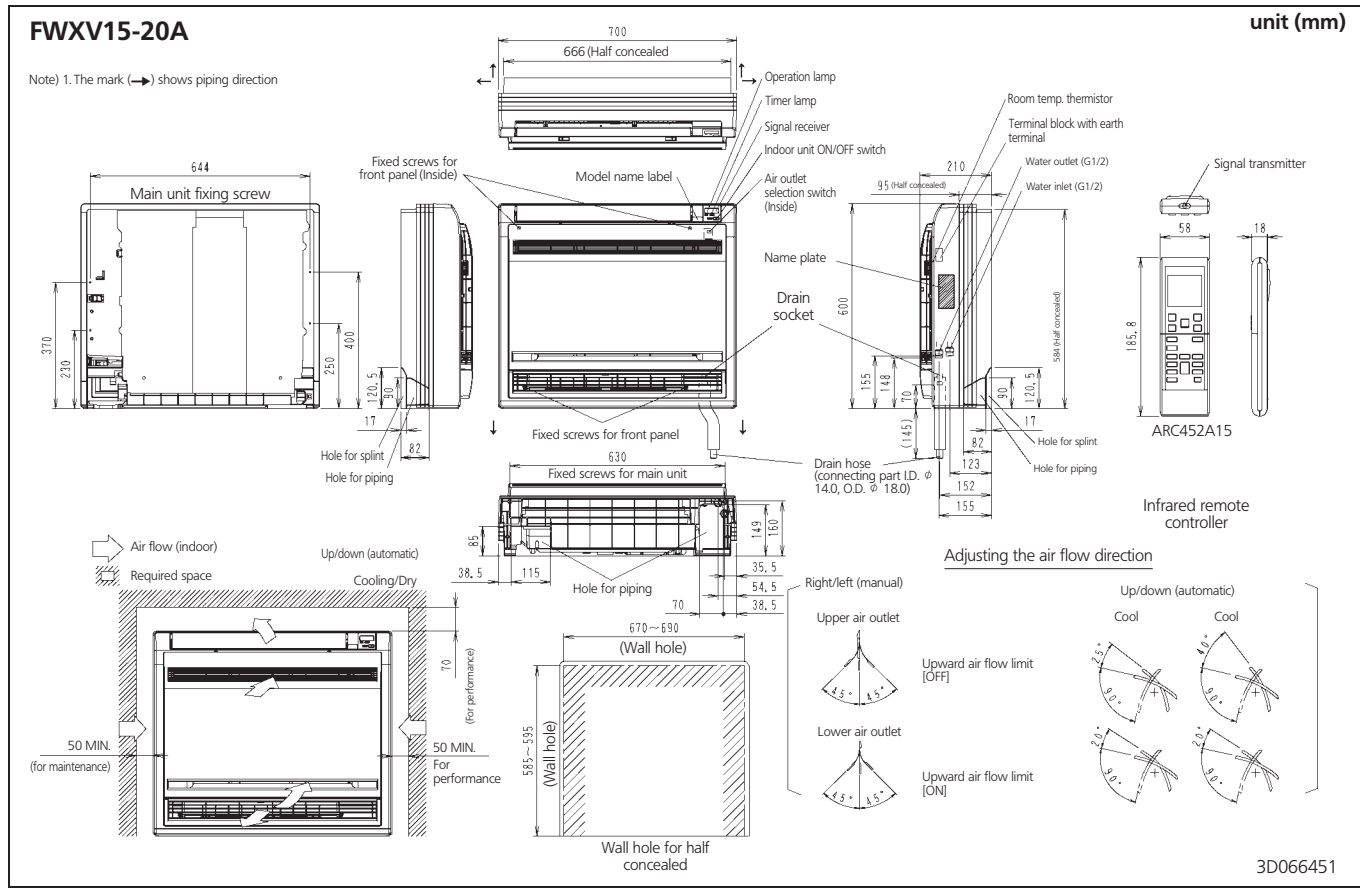
Air temperature (°CDB-°CWB)		25°CDB-18°CWB															
Water temperature (Entering °C - leaving °C)		6°C-11°C				7°C-12°C				8°C-13°C				9°C-14°C			
Model	Fan	Total cooling capacity kW	Sensible cooling capacity kW	Water flow L/min	Water pressure drop kPa	Total cooling capacity kW	Sensible cooling capacity kW	Water flow L/min	Water pressure drop kPa	Total cooling capacity kW	Sensible cooling capacity kW	Water flow L/min	Water pressure drop kPa	Total cooling capacity kW	Sensible cooling capacity kW	Water flow L/min	Water pressure drop kPa
FWXV15AVEB	H	1.58	1.28	4.5	16	1.51	1.24	4.3	15	1.35	1.15	3.9	12	1.24	1.11	3.6	10
	M	1.11	0.90	3.2	8	1.07	0.87	3.1	8	0.95	0.81	2.7	6	0.88	0.78	2.5	5
	L	0.74	0.60	2.1	4	0.71	0.58	2.0	3	0.64	0.55	1.8	3	0.58	0.53	1.7	2
FWXV20AVEB	H	2.31	1.90	6.6	33	2.23	1.82	6.4	31	1.98	1.70	5.7	25	1.83	1.65	5.2	21
	M	1.58	1.31	4.5	16	1.51	1.25	4.3	15	1.35	1.16	3.9	12	1.24	1.12	3.6	10
	L	1.11	0.93	3.2	8	1.07	0.88	3.1	8	0.95	0.82	2.7	6	0.88	0.79	2.5	5

Air temperature (°CDB-°CWB)		30°CDB-22°CWB															
Water temperature (Entering °C - leaving °C)		6°C-11°C				7°C-12°C				8°C-13°C				9°C-14°C			
Model	Fan	Total cooling capacity kW	Sensible cooling capacity kW	Water flow L/min	Water pressure drop kPa	Total cooling capacity kW	Sensible cooling capacity kW	Water flow L/min	Water pressure drop kPa	Total cooling capacity kW	Sensible cooling capacity kW	Water flow L/min	Water pressure drop kPa	Total cooling capacity kW	Sensible cooling capacity kW	Water flow L/min	Water pressure drop kPa
FWXV15AVEB	H	2.32	1.57	6.7	34	2.23	1.50	6.4	31	2.00	1.40	5.7	25	1.80	1.33	5.2	21
	M	1.64	1.09	4.7	17	1.57	1.06	4.5	16	1.41	0.98	4.0	13	1.28	0.93	3.7	11
	L	1.09	0.73	3.1	8	1.05	0.71	3.0	7	0.94	0.66	2.7	6	0.84	0.63	2.4	5
FWXV20AVEB	H	3.41	2.32	9.8	70	3.28	2.21	9.4	65	2.94	2.07	8.4	53	2.66	1.96	7.6	44
	M	2.32	1.59	6.7	34	2.23	1.51	6.4	31	2.00	1.41	5.7	25	1.80	1.34	5.2	21
	L	1.64	1.12	4.7	17	1.57	1.07	4.5	16	1.41	1.00	4.0	13	1.28	0.94	3.7	11

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4 Dimensional drawing & centre of gravity

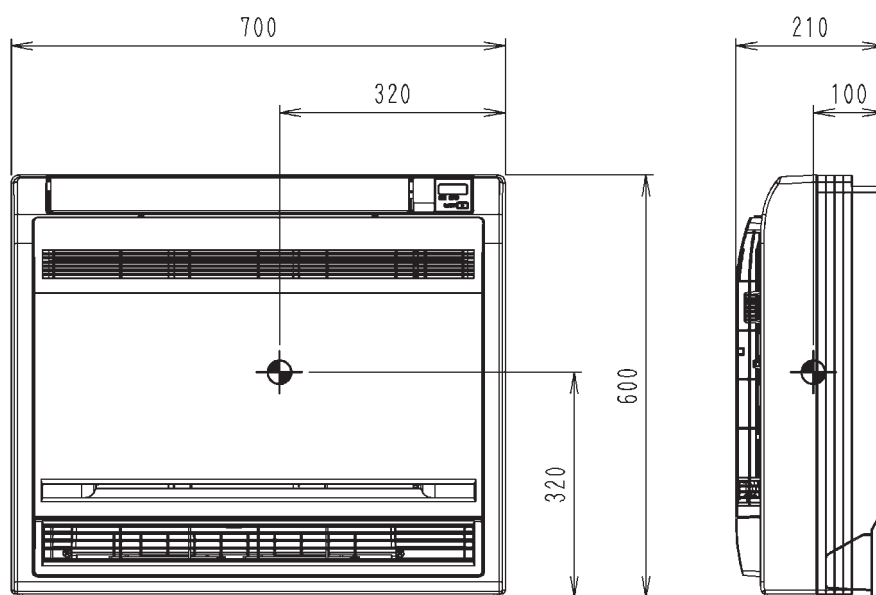
4 - 1 Dimensional drawing



4 Dimensional drawing & centre of gravity

4 - 2 Centre of gravity

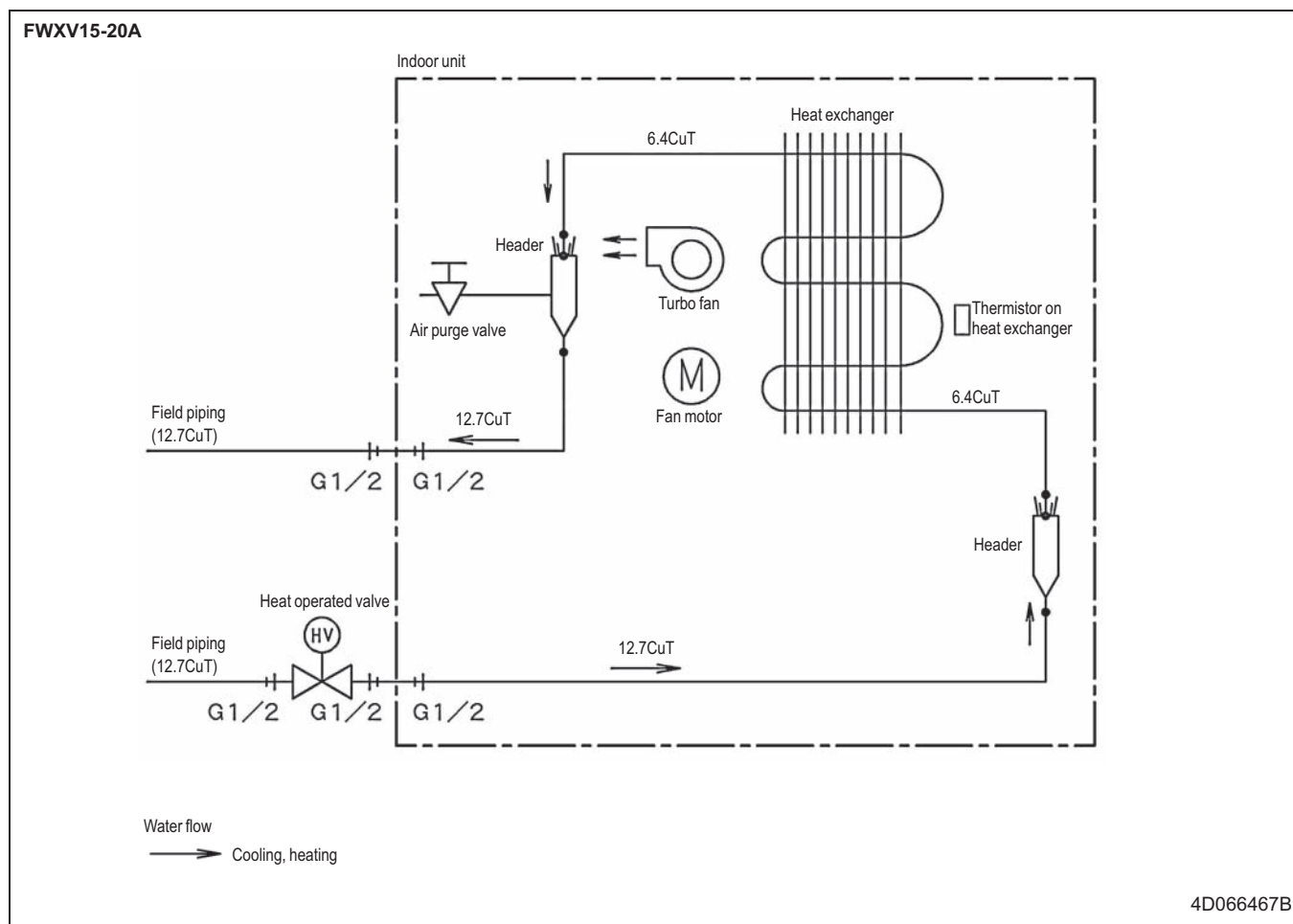
FWXV15-20A



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5 Piping diagram

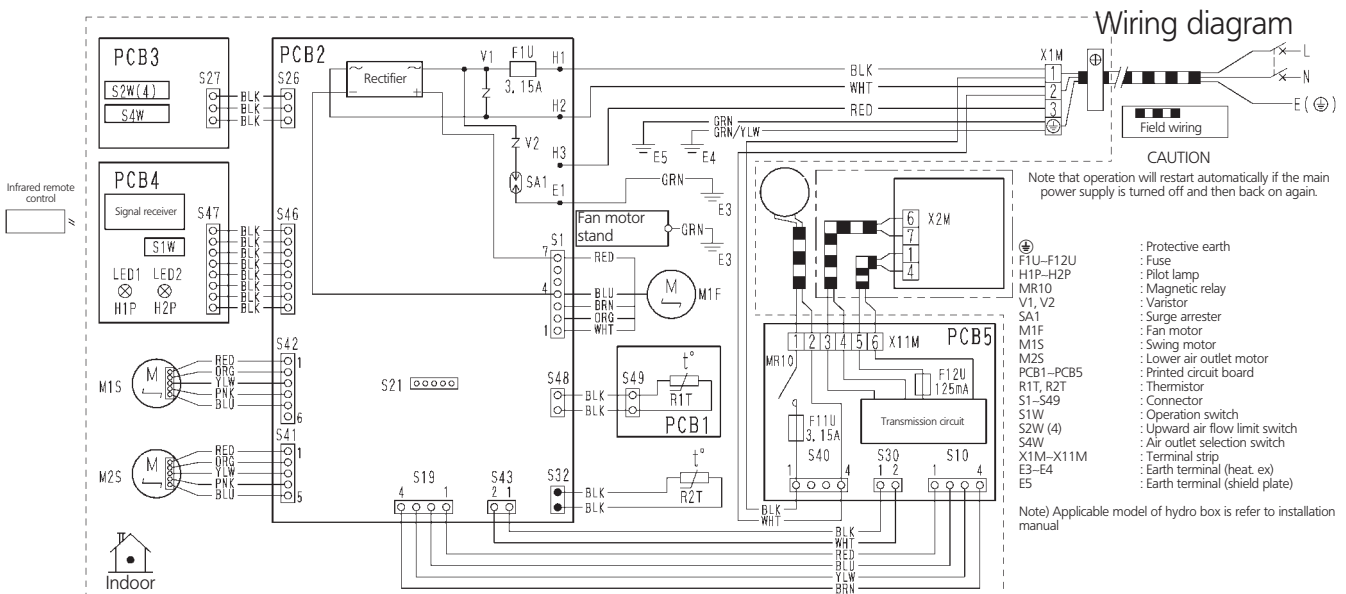
5 - 1 Piping diagram



6 Wiring diagram

6 - 1 Wiring diagram

FWXV15-20A

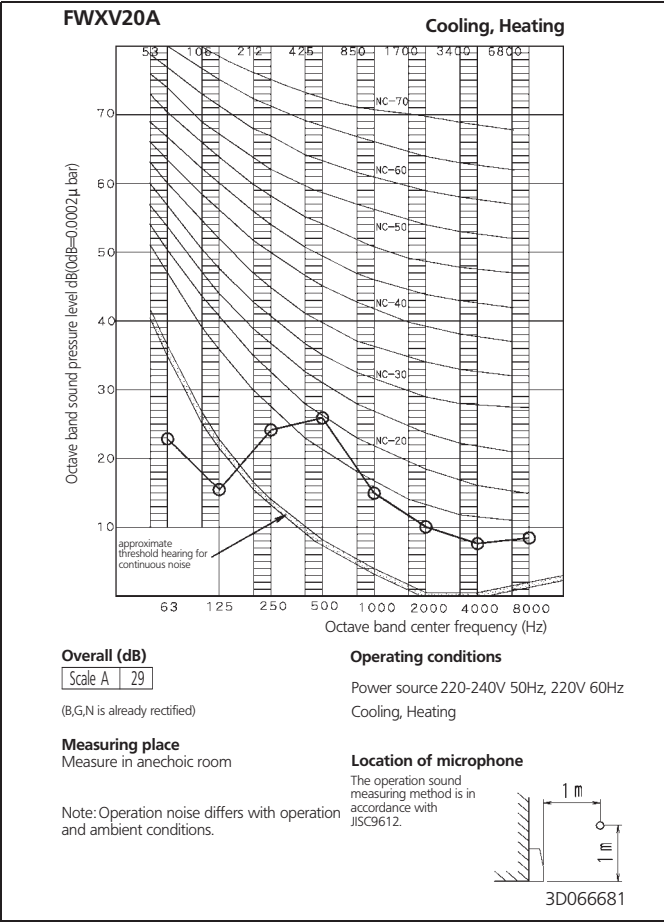
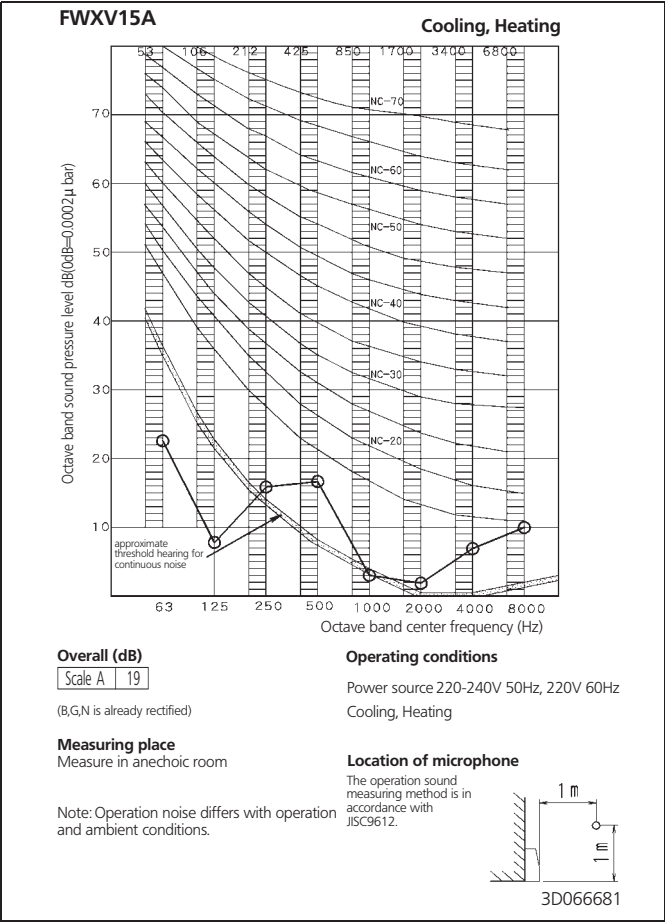


- NOTES:**
- 1 Size: Length 70 X Width 155
 - 2 Refer to purchasing specification AS303002, unless otherwise specified.
 - 3 This drawing was drawn on CAD system.

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7 Sound data

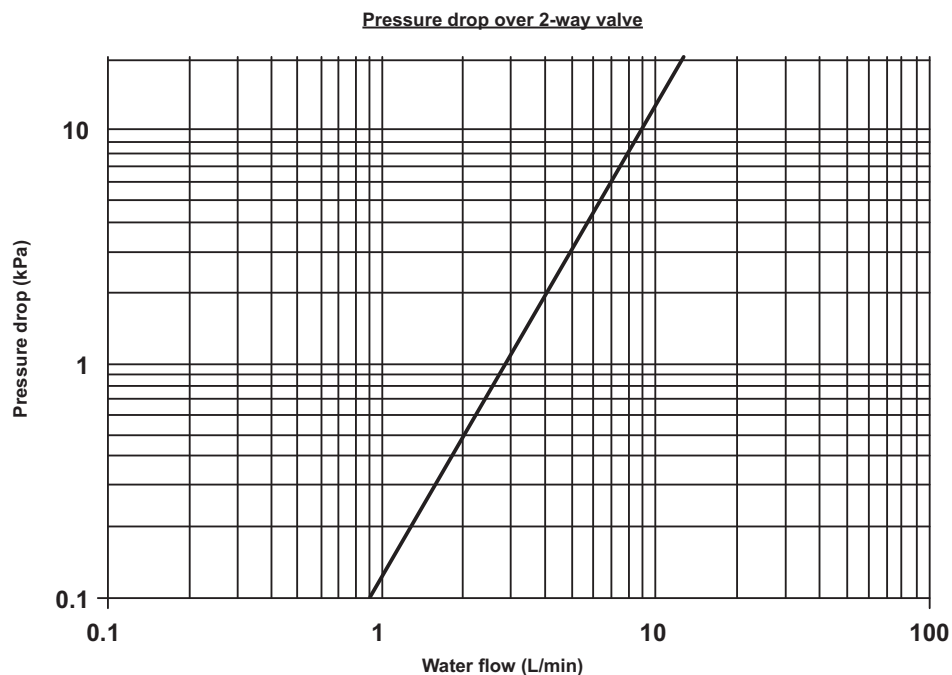
7 - 1 Sound pressure spectrum



8 Hydraulic performance

8 - 1 Static pressure drop unit

FWXV-A



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NOTE

1. This graph can be used to calculate the pressure drop over the 2-way valve.
The pressure drop over the Heat Pump Convector is not included.



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